DOCUMENT RESUME

ED 180 769 SE 029 396

TITLE State Plan for Fiscal Year 1980. Environmental Education, Phase I.
INSTITUTION Kansas State Dept. of Education, Topeka.
PUB DATE 13 Feb 79
NOTE 60p.: Contains occasional light and broken type

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Community Involvement; *Curriculum Planning; Elementary Secondary Education; *Environment; *Environmental Education; Planning; Public Policy; *State Curriculum Guides

ABSTRACT

The purposes of this first phase of a state environmental education plan are: (1) to present the goals and objectives of environmental education for the state, and (2) to identify responsibility for providing leadership and guidance in meeting the objectives. The plan provides the framework within which detailed action plans will be developed in major areas of: (1) development and implementation of guidelines for planning programs within school districts; (2) in-service programs; (3) preparation and dissemination of continuing education materials for school personnel; and (4) development of curriculum and instructional materials for students. (Author/RE)

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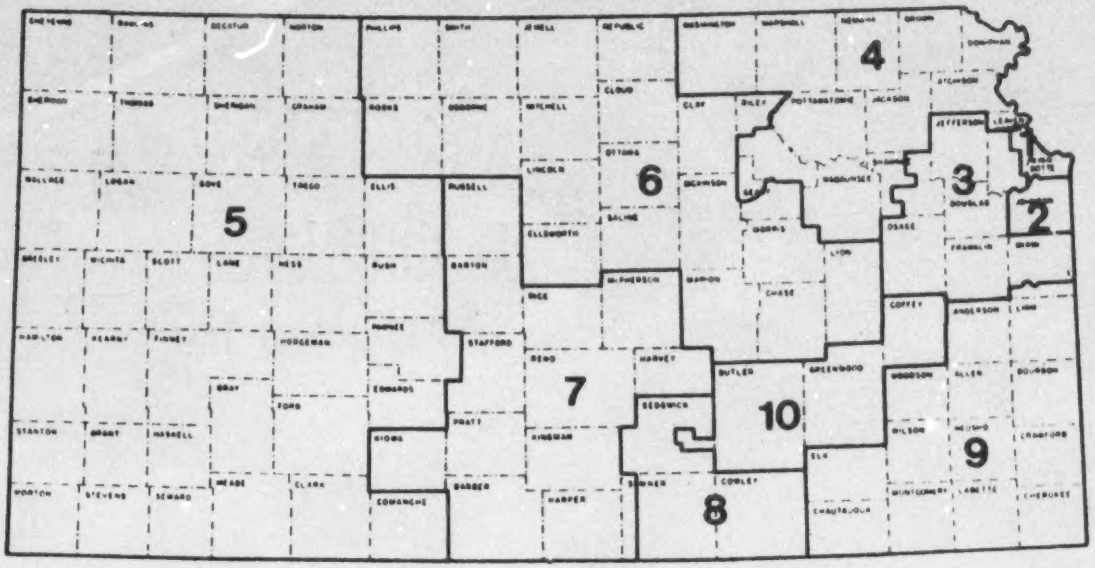

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FOREWORD

Environmental problems are complex. Realization of this fact has resulted in the recognition that scientific and technological solutions in themselves are only one means for dealing with our environmental problems. Underlying many of these problems and solutions are human attitudes and behaviors which affect environmental quality.

The growing public awareness and concern related to the deterioration of our environment has resulted in a need for and demand that education at all levels deal with these environmental problems as part of the educational process. Because schools have the formal means for teaching ordered concepts and they occupy major portions of prime learning time in students' lives, the educational system is in a position to integrate and communicate environmental awareness with other related concepts and knowledge.

The purpose of this document is to provide a framework and direction for the development and implementation of an environmental education plan.

Merle R. Bolton
Commissioner of Education

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ACKNOWLEDGEMENTS

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OVERVIEW

The Environmental Education State Plan will be developed in four phases.

Phase I identifies action plans which includes areas outlined below.

1. Introduction
   - A. Purpose and Scope
   - B. Why Environmental Education
   - C. Historical Background
   - D. The Role of Kansas Advisory Council on Environmental Education
2. The State Plan
   - A. Goals and Objectives
   - B. Plan of Action
   - C. Management Plan
   - D. Evaluation

Phase II: An updated needs assessment and survey will be conducted to determine the state's environmental education needs and utilization patterns. The formal needs assessment will be conducted with the Educational Institutions. The survey of government agencies and communities will be conducted by KACEE organizations.

3. Role of Educational Institutions
   - A. Local School Districts
   - B. Private and Parochial Schools
   - C. Community and Vocational Colleges
   - D. Colleges and Universities
4. Role of Governmental Agencies
   - A. State Conservation Commission
   - B. Fish and Game Commission
   - C. Department of Health and Environment
   - D. State and Extension Forestry
   - E. Others
5. Role of Community Groups
   - A. Civic Groups
   - B. News Media
   - C. Labor and Industry
   - D. Professional Organization
   - E. Others

Phase III: Assistance will be provided to educational institutions, governmental agencies and community groups (listed above) to coordinate and implement a comprehensive educational program in the state of Kansas.

Phase IV will implement an ongoing evaluation plan involving all levels.

I. INTRODUCTION

A. PURPOSE AND SCOPE

The purpose of this phase of the plan is first to present the goals and objectives of environmental education in Kansas and, second, to identify responsibility for providing leadership and guidance in meeting the objectives.

The long-range directions of this plan are in the overall objectives of environmental education. The plan provides the framework within which more detailed action plans will be developed in the major areas of a) development and implementation of guidelines to assist school districts and agencies in planning and organizing programs, b) in- and preservice programs for teachers and/or agency field workers, c) the preparation and dissemination of materials for the continuing education of school personnel, and d) curriculum and instructional materials for students.

The State Department of Education in cooperation with Kansas Advisory Council for Environmental Education (KACEE) has been charged to develop and implement an environmental education plan in Kansas.

B. WHY ENVIRONMENTAL EDUCATION

Man has been and always will be an inseparable part of the earth's environment. This awareness was frequently a part of early religion. As man moved into cities and lost his contact with growing things, he came to believe that he was master of a world with inexhaustible resources. Only in recent years has he begun to realize his limitations as well as limits to the world's resources.

Through technology man has been able to modify small portions of his environment; but, in so doing, in some cases he has affected the balance of nature with consequences that may disappear in moments or may persist for centuries. On the other hand, natural processes have been modifying the environment for millions of years. Where the two meet, intertwine, reinforce, and/or offset each other is generally unclear; but man with his machines and technology can create serious disruptions within the natural system.

Man himself is a disrupting influence. His ability to multiply, without significant natural enemies to control his numbers, may pose a threat to his continued existence. Where does man properly fit into the order of things? His insatiable appetite for food, goods, and added comforts and conveniences creates serious imbalances. The city slum may well be the symbol of man's future on this earth unless he makes a serious effort to bring his numbers and his conduct into some resemblance of harmony with other life and the resources of this planet. For example, two centuries ago, the tropical rain forests occupied a zone estimated to have extended at least ten degrees north and south of the equator. Experts are now estimating that, at the present rate of depletion, the rain forests of the world may be completely destroyed before the end of this century.

Through the centuries, plants and animals have evolved and disappeared through natural processes. During the past two centuries, the rapid acceleration of rate of extermination of plants and animals has been largely due to man's activities. Not only is man creating problems by his direct destruction of habitat and exploitation of natural resources, but also in the processing of some of these resources. In his own living, he is creating by-products which are destructive in themselves.

The problems that exist in the environment today have their origins in man's past and present way of life. A new life style is called for. Enlightened ways of living in harmony with nature, with each other, and with our world must be discovered and put into effect.

Environmental education, the development of an awareness of life and its relationships with other forms of life, within the framework of available natural resources is a lifelong process. Man must accept responsibility for the effect of his activities on the environment. Environmental education will enable him to make sound ecological decisions and to foresee their consequences, to make value judgments, and to act accordingly. Environmental education encourages development of a style of living which minimizes destruction and maximizes those relationships which enhance life.

Thus, environmental education is more than a mere reduction in the degradation caused by man; it is more than a recognition of pollution problems and coming up with an acceptable solution. Environmental education should provide an ecological perspective for every aspect of learning and living. It is not reasonable to expect people to develop concern for the physical environment unless they first develop an understanding of and a concern for the well-being of other people.

Environmental education requires an intensive effort to make basic cultural changes which will become an integral part of all human learning and behavior. The responsibilities must be shared by all governmental units, schools, business, industry, labor, citizen groups, churches, and the family. Because these are such diverse groups, it is necessary that a comprehensive plan for environmental education be developed, accepted, and implemented by and through all segments of Kansas society.

C. HISTORICAL BACKGROUND

In the 1960's, a hue and cry arose the country over for a greater appreciation of the natural environment and for measures to protect and preserve it. The initiative for such action evolved largely from the local citizenry, particularly the youth of the country. Certain members of Congress were quick to recognize that the time for action was ripe and soon enacted the National Environmental Policy Act of 1969. This also involved the creation of the National Environmental Protection Agency (NEPA), and the Council of Environmental Quality (CEQ).

The youth of the country, particularly the students in colleges and universities, rallied enthusiastically to the environmental cause with a nationwide Earth Day on April 22, 1970. Legislation in the field of education resulted in the Environmental Education Act, which was signed into law on October 30, 1970. Educators, environmentalists, and legislators provided an unparalleled support indicative of the widespread public concern about environmental issues. All sectors of the country and all age groups were within the broad spectrum of the educational activities envisioned.

For example, to assist in the implementation of the act, numerous colleges and universities developed workshops for elementary and secondary education teachers. Because of the fact that the National Environmental Policy Act required *environmental impact statements* on virtually every major construction project, such as highways, pipelines, dams, and major building developments, many colleges and universities also became involved in research projects and the writing of such reports. Within the past decade many such institutions have also developed full fledged departments of environmental studies.

D. THE ROLE OF THE KANSAS ADVISORY COUNCIL FOR ENVIRONMENTAL EDUCATION

Whereas most national efforts were not active until the late 1960's, Kansas was in the forefront of environmental awareness years before much of the nation. In the early mid-60's, before Earth Week brought national attention to problems of the environment, district supervisors of the Kansas Conservation Districts and others were expressing concern for the environment. The concern which has been expressed through various interested individuals and groups was first formally coordinated through the Kansas Association of Conservation Districts' ad hoc Education Committee when more than three dozen educators and conservationists from across the state met October 17, 1968, to consider environmental education needs. Although the group clearly recognized that disciplines within science and technology were already actively concerned with problems of the environment, a clear concensus existed that the long range solution to Kansas' environmental problems necessitated a major interdisciplinary thrust in the realm of environmental education. To accomplish this goal, the group took steps to organize the Kansas Advisory Council for Environmental Education (KACEE).

As previously noted, the most significant development in Kansas was the formation of the Kansas Advisory Council for Environmental Education (KACEE). In 1974, the KACEE developed *Environmental Education Resource Directory for Kansas,* a listing of all the agencies and organizations which offered resources in the environmental education area. The directory was printed by the Cooperative Extension Service, Kansas State University, in cooperation with the Kansas State Board of Education and distributed to every school in the state.

A steering committee comprised of representatives of the State Conservation Commission, State Department of Education, United States Department of Agriculture Soil Conservation Service, Kansas State Extension and State Forestry, Kansas Association of Conservation Districts, Fish and Game Commission, Fort Hays State University, and McPherson Junior High School drafted formal bylaws for the proposed organization and outlines formal goals and responsibilities recognized as essential to the organization. The bylaws were officially adopted, officers were elected, and KACEE began to work toward the goals that it had set for itself in May, 1969. Through its three major action committees (Information Committee, Teacher Preparation Committee, and Educational Materials Committee) the council spent the next year and a half surveying interests and activities throughout the state relative to Environmental Education.

The Teacher Preparation Committee contacted colleges and universities involved in primary and secondary school teacher preparation inquring about their interests in environmental education, the degree to which such programs were planned or implemented, and areas in which the Kansas Advisory Council for Environmental Education could be of assistance. Based on responses from these institutions, it was learned that less than half had established study programs in environmental education; but most institutions indicated an interest in further development through support and cooperation of the Kansas Advisory Council for Environmental Education. There were further indications that existing environmental education programs were largely initiated through momentum within science departments, and coordination with departments and schools of education was generally inadequate or nonexistent.

Concurrent with this activity, the Information Committee prepared a small leaflet for distribution to primary and secondary schools outlining the objectives of the Kansas Advisory Council for Environmental Education and what the Kansas Advisory Council for Environmental Education could provide by way of assistance.

As a result, many individual schools and school systems developed environmental programs during the 1970's; however, they lack guidelines and direction for their continuance. The identification of these exemplary efforts in environmental education will provide a basis for subsequent curriculum development and articulation, reduce some of the duplication of effort and expense associated with developing programs, and indicate alternate approaches to programs.

Aided greatly through the support of state and extension forestry personnel from Kansas State University and the U.S. Forest Service, KACEE developed a series of Interdisciplinary Environmental Education Workshops for teachers and resource people. Eleven four-day workshops were held at various locations throughout the state over a period of three years. Over 450 administrators, teachers, college students, and agency personnel from various disciplines attended these workshops and received encouragement to integrate environmental education concepts into their teaching techniques; to learn about the environment, its components, and its interrelationships; and to involve their agency in economic, social, and political factors affecting the environment.

Kansas Advisory Council of Environmental Education is an organization comprised of member organizations. Its membership has grown to over seventy-eight public and private agencies, institutions, organizations, and associations with an interest in supporting environmental education in Kansas (see Appendices for membership list). The efforts and support of the KACEE prompted through the support the 1978 Kansas Legislature to pass House Concurrent Resolution Bill No. 5004 for environmental education. The resolution directed the State Board of Education to support and promote environmental education programs in Kansas school districts and the State Board of Regents to emphasize environmental awareness in teacher preparation programs. It is further requested that the State Department of Education officially recognize KACEE and consult with the council in preparing a comprehensive statewide plan for environmental education.

In August of 1978, the State Board of Education officially recognized Kansas Advisory Council of Environmental Education and authorized the State Department of Education in cooperation with KACEE to formulate and carry out a statewide environmental education program through development of a comprehensive state plan. In addition to the plan, the Department and KACEE have the responsibility to assist school districts and agencies in planning and organizing local environmental education programs, to provide in-service and other training, and to disseminate materials.

II. THE PLAN

A. GOALS AND OBJECTIVES

The goals for all phases of the Kansas Environmental Education State Plan as developed by the Kansas Advisory Council for Environmental Education and the Kansas State Department of Education are as follows:

1. To develop within each individual an awareness and appreciation of our environment and acceptance of responsibility.
2. To develop an understanding of one's relationship with his natural and man-made surroundings.
3. To be able to identify possible alternative choices and assess their benefits and risks.
4. To develop a desire and ability for problem solving and decision making concerning environmental issues.

In order to accomplish these goals, the following objectives must be met.

1. To integrate environmental concepts and activities into present school curriculum and educational programs of governmental agencies and community groups.
2. To develop material resource centers for those who are involved with environmental education programs.
3. To train educators to acquire skills and knowledge about content and approaches for environmental education.
4. To emphasize preservice training to assure that all future teachers will have a basic environmental literacy.
5. To develop guidelines for environmental education.
6. To assist schools and school districts in implementing environmental education guidelines through the involvement of students, parents, district staff, and interested citizens.
7. To assist schools and school districts in identifying outdoor laboratory sites.

Acknowledged in this plan is the fact that a needs assessment is necessary to determine the needs or discrepancies between where Kansas wishes to be and where Kansas actually is in environmental education. Survey and needs assessments have been conducted in the past; however more current data on needs are required.

B. PLAN OF ACTION TO BE INITIATED IN PHASE I

In order to fulfill the goals and objectives of environmental education, the following plan of action was developed by the Department of Education in cooperation with the Kansas Advisory Council for Environmental Education (KACEE).

ACTION PLAN #1 The State Department of Education, in cooperation with the Kansas Advisory Council for Environmental Education, will provide leadership for environmental education through coordination with governmental agencies, local education agencies, business and industry, the Board of Regents, other postsecondary education, and private organizations to ensure a broad base of support to serve as a catalyst for pooling resources, and to focus on the community for maximum effort toward implementation of a statewide plan.

Background for Selection of Action Plan

Environmental education confronts the increasingly apparent reality that man is seriously and perhaps irreversibly damaging his environment. The uncontrolled use of natural resources, increased urbanization, and the general awareness that the quality of life is deteriorating bring an urgent need for concern. If any substantial progress in meeting the environmental crisis is to be made, the citizenry must be informed and

educated about the whole spectrum of issues concerned with the environment. To achieve this objective, however, means changes in the basic attitudes toward the environment and mankind's place in it.

To help society change its attitude toward the environment, the Department will seek to develop an environmentally literate citizen who possesses the skills, attitudes, and knowledge necessary to identify and solve environmental problems and to live in harmony with the environment. Department leadership, in cooperation with the Kansas Advisory Council for Environmental Education, will assist those who are working toward the evolution of a society which understands and is willing to live within the natural laws of the environment.

Major Steps for Initiation and Implementation of Action Plan

1. Consultative service will be provided by the KACEE and the Kansas State Department of Education to constituent agencies to help implement basic environmental education principles.
2. Assistance will be provided to plan and organize the integration of the basic principles of environmental education into existing courses.
3. Postsecondary instructors will be encouraged to incorporate environmental education preparation opportunity into teacher training programs.

Evaluation Procedure to Determine if Action Plan Has Been Met

Reports of the on-site visits, schedules, and agenda of the in-service workshops, memoranda of requests and responses for consultative service, and records of new and existing programs involved with environmental education will be on file in the Educational Assistance Section.

ACTION PLAN #2

The State Department of Education, in cooperation with the Kansas Advisory Council for Environmental Education, will conduct a statewide needs assessment for environmental education.

Background for Selection of Action Plan

The needs assessment will be a research and planning activity designed to determine the state's environmental education needs and utilization patterns. It is intended to provide data and kinds of environmental education needed.

The needs assessment will be based on the one completed in 1975 so that duplication of data collection and resource inventory will be minimized.

Major Steps for Implementation of Action Plan

1. Literature relating to research and evaluation of existing environmental education programs will be reviewed.
2. Questionnaires will be selected or designed to be distributed randomly to public and private schools, selected groups, and organizations.
3. The collected data will be analyzed.

Evaluation Procedure to Determine if Action Plan Has Been Met

A report of the needs assessment conducted by the KACEE and Kansas State Department of Education will be made to the State Board of Education. Copies of the report will be on file in the Educational Assistance Section.

ACTION PLAN #3

The State Department of Education, in cooperation with the Kansas Advisory Council for Environmental Education, will plan activities and programs in the light of the state's needs and the environmental education services pattern.

Background for Selection of Action Plan

Until rather recently, the environment was thought to be the proper concern of only the environmentalists, conservationists, and ecologists. The consequence of such a myopic perspective within society was a narrow approach to the enormously complicated relationship between humans and the world. Now, interdisciplinary approaches must be employed to study and teach the intricate connections among the environmental constituencies.

Conversely, environmental education offers an excellent means for the development of a more integrated and more functional curriculum. Environmental problems are encountered by the individual each day. If the statement that people learn by doing is accepted, then the environment affords them that opportunity.

Just as one's environment permeates an individual's entire life, environmental education should permeate one's entire learning experience. The goals of environmental education become the goals for general education. Out of the interaction of all the curricular areas should come an environmental ethic, that is, a proper sense not only of man's relationship to man but also to his total environment.

The approach in Kansas to environmental education calls for the restructuring of existing curricular areas rather than the addition of new courses. To accomplish this, the needs assessment, as discussed in Action Plan #2, will identify the curriculum areas which needs to be emphasized through the development and dissemination of additional instructional materials and teaching strategies.

Major Steps for Implementation of Action Plan

1. Needs will be identified from the assessment.
2. Environmental concepts and activities will be integrated into present school curriculum and educational programs of governmental agencies and community groups.
3. Resource centers for those who are involved with environmental education programs will be developed.
4. Schools and school districts will be assisted in identifying outdoor laboratory sites.

Evaluation Procedure to Determine if Action Plan Has Been Met

A list of activities based on needs identified in Action Plan #3 will be on file in the Educational Assistance Section.

C. MANAGEMENT OF PLAN

Within the Department of Education, the primary responsibility of environmental education is assigned to the science and mathematics program specialist of the Educational Assistance Section. This position is responsible for the following objectives in developing and implementing a plan for environmental education, which is designed to meet the needs of all phases of formal and non-formal education.

1. Leadership in environmental education will be asserted and demonstrated through (a) visible commitment; (b) participation in a communications network which provides for articulation, dissemination, implementation, and evaluation of environmental efforts; (c) cooperation with the legislature; and (d) participation in interagency cooperation.
2. Cooperation with the Kansas Advisory Council for Environmental Education will be emphasized in (a) reviewing planning procedures currently in existence within the state; (b) developing strategies for implementing the state plan; and (c) reviewing, evaluating, and updating the plan on an annual basis.
3. Assistance will be provided to educators in (a) developing programs with opportunities for students to have interdisciplinary experiences concerned with environmental issues, problems, and solutions, in order to produce environmentally literate citizens; (b) designing evaluative instruments for environmental literacy and values; (c) coordinating a clearinghouse system for sharing environmental education resources; (d) communicating with labor, industry, and business about their efforts and resources in environmental education; and (e) offering a variety of services, such as in-service training to help teachers use materials effectively, research studies and materials, and resource people as speakers and consultants.

The program specialist involved with environmental education within the Department of Education should be a person with broad awareness of all pertinent fields who is skilled in learning environments and who can work with learners (administrators, teachers, and agency personnel). Appropriate skills for the position are as follows:

1. Ability to assist learners in assessing their concerns, questions, needs, and problems;
2. Ability to provide real and simulated experiences which enable learners to explore their concerns and needs;
3. Ability to assist learners in discovering answers and solutions based on these experiences;
4. Ability to provide human and material resources which can give learners information to conceptualize, validate, and expand upon their discoveries.
5. Ability to help learners plan for new experiences which expand their skills and knowledge, thus raising more concerns and questions.

D. EVALUATION

Following the first phase of the plan which includes a needs assessment to collect information for determining (1) what is needed in terms of environmental education at all levels of education (2) what is already occurring in environmental education on these. Two additional planning phases will take place: the identification of goals and objectives to alleviate the needs determined in the assessment, and the development of an evaluation plan to determine the progress of environmental education in Kansas. The plan will include a five-step procedure for evaluating programs.

1. A review of the program. — After establishing the evaluation objectives, the review will address the background, goals and objectives, staff, student and agency participation, activities, and the amount and source of funds of the program. The evaluation objectives of the review will indicate whether the evaluation pertains to only the district, school, or student level or other areas. This should determine if all the efforts contributing to student outcomes in environmental education are to be reviewed in the evaluation or if only selected efforts are to be included.
2. Collection of information. — A type of formative and/or summative evaluation* planning sheet (Sample A sheet) will be designed to indicate the instrument to be used in measuring the progress or success of an objective, the dates for use, the analysis techniques, and person responsible. (See Sample Sheet A.) If the sheet indicates that change in performance is to be measured, then arrangements for testing at a given time internal will be made. To ensure that the same elements are being measured, tests should be comparable. Most commercial publishers have different forms of the same test specifically for such purposes. If different forms are not available, using the same form is acceptable, provided it is noted on the planning sheet.

   To assist in the evaluation planning, a list of commercial tests will be compiled and disseminated to participating agencies. If the appropriate instruments for measuring change or other outcome is not available, instruments can be developed; however, it should be noted that the process of developing and validating a test is complex, requiring an enormous amount of time. If the group participating in the program is too large for measurement, acceptable sampling procedures can be used. Life test development sampling requires time and a certain amount of statistical expertise.

   A. When the number to be tested is less than a consensus, random selection is necessary if the results are to be generalized.
   B. Confidence levels and sample sizes can vary depending upon practical or administrative considerations. The larger the sample, the better the confidence level.

   To facilitate the collection of information associated with the program, evaluation monitoring sheets will be developed to note activities, the date the activity was completed, and who completed it. (See Sample Sheet B.) Compilation of data from these sheets will help to determine if a program objective has been completed.

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* Formative evaluation produces information that is fed back during program implementation to serve the needs of the program developers. Summative evaluation is designed to determine the success or failure of a completed program according to its objectives.

3. Administration of instruments. — This step will be emphasized because of its importance in the evaluation process. To ensure the collection of reliable information, the administration of the instruments should be conducted in the same manner and under the same or similar conditions. It is helpful if the instrument is administered to the participants at the same time; but, unless the instrument is standardized and the results are going to be compared with a national or state norm, all pre and posttests do not need to be administered on the same day. However, administration of the pre and posttests should not vary more than a week.
4. Analysis of information. — After the data have been collected, it is suggested that some type of statistical or non-statistical method be used to analyze the data. The use of the data in answering the evaluation questions determines the method. If the data are to be used to document the presence or absence of some attribute, such as the participation in the environmental education program, accounting or non-statistical method is adequate. If, however, the analysis requires determining whether or not the post-measure of an attribute is significantly different from its pre-measure, statistical measures should be employed.

A further consideration before collecting and analyzing the collected data is determining whether or not the reference point — the point of comparison — is norm or criterion-based. For norm-referenced data the program data are compared to a standardized normative value — grade equivalent or age equivalent. Standardized tests are often used to measure program outcomes; so when norm-referenced instruments are used, extreme care should be taken. Some statisticians feel that norm-referenced instruments frequently miss the objectives of a program because the measure lacks discreteness to measure the specificity that the program is attempting to obtain.

When an instrument is considered to be a precise measure of an objective, it can be criterion-referenced; in other words, the participants in the program are to reach a particular level, stage, or criterion in order to establish that the objective has been achieved. While either standardized tests or especially developed instruments can be used as criterion-referenced measures, standardized tests are often insufficiently specific or non-existent for measuring some criteria.

5. Report of results. — A wide range of people will probably want to read the evaluation report, so it should be organized for easy interpretation by everyone concerned with the program. For example, individuals at the operating level (teachers and counselors) require specific individual data on each student, while policymakers at the school board level need more general information, such as aggregate data.

The Kansas Advisory Council for Environmental Education and the local ad hoc committees will probably analyze the evaluation report for the purpose of recommending program changes or alterations. It is suggested that the evaluation report include answers to each evaluation objective, interpretation, recommendations, and limitations on the findings.

Sample A
(School Districts)
Evaluation Plan

Objectives	*Instrument*	*Dates for Gathering Data*	*Measurement Dates*	*Analysis Technique*	*Person(s) Responsible*
The number of public school districts and private schools in Kansas which have adopted environmental education programs will increase by 25 percent.	1. Questionnaire 2. Follow-up	March-May 1979 Repeated each year for five years.	June 1, 1979 Repeated each year for five years.	Percent of districts and schools that have adopted environmental education.	Plan Evaluator

Other Agencies

The number of participating agencies in Kansas which have adopted environmental education programs will increase by 25 percent.

Sample B
(School Districts)
Evaluation Monitoring Format

Person(s) Responsible	*Activity*	*Completion Date*		*Documentation*
		Planned	*Actual*	
Coordinator of Environmental Education, USD #999	Make facilities available to fit the needs of the project.	October 15, 1979	November, 1979	Inventory Records

APPENDICES

APPENDIX 1

DEFINITIONS

Environment ..... (One) "problem with our interpretation of the word *Environment* is its comprehensiveness. *Environment* includes everything *from the skin out,* according to one witness. In one sense, the breadth of the term *environment* is helpful, for it underlines the fact that we are today concerned with the complex, total system of the planet. In the past, national issues similar to those we now lump together under the environment label were narrower in focus, as indicated by the labels *conservation, wilderness,* and *nature.* Environment refers to *man and his relationship to all living things,* and includes not only the natural world — as we are often inclined to interpret it — but also the man-built world."*

The literal dictionary definition of the environment is: .....

1. The external circumstances, conditions, and things that affect the existence and development of an individual, organism, or group.
2. The act of surrounding or being surrounded.
3. Surroundings. Numerous other factors and disciplines are involved in definitions.

On the collegiate level the definition of environmental studies .... A multidisciplinary process that identifies environmental problems and proposes solutions, or *is a multidisciplinary, problem-oriented major designed to give students a knowledge of the characteristics of the environment and the working approaches to the solution of environmental problems,* (Univ. of California at Santa Barbara).

Whereas the simple dictionary definition of the term *environment* is clear, the term has taken on other meanings as it has been broadened to such titles as *environmental studies, environmental science, environmental management, environmental education,* and perhaps others. The latter designation is most meaningful for the field of education since it has the force of statutory law. In the development of the Office of Environmental Education, under Public Law 91-516, two definitions were developed:

Working Definition # 1 (emphasizing process and theory) ..... Environmental education is the process that fosters greater understanding of society's environmental problems and also the processes of environmental problem solving and decision making. This is accomplished by teaching the ecological relationships and principles that underlie these problems and showing the nature of the possible alternative approaches and solutions.

That is, the process of environmental education helps the learner perceive and understand environmental principles and problems, and enables him to identify and evaluate the possible alternative solutions to these problems and assess their benefits and risks. It involves the development of skills and insights needed to understand the structure

* Morrisett and Wiley, *The Environmental Problem.*

requirements, and impact of interactions within and among various environmental entities, subsystems, and systems.

Working Definition # 2 (emphasizing content and purposes) ..... The term ***environmental education*** means the educational process dealing with man's relationship with his natural and man-made surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment.

That is, environmental education is the process of inquiry into both the specific and general environmental implications of human activities viewed from the perspective of social needs and values as they relate to general public policy.

APPENDIX 2

SUB-APPENDIX 2.A

KANSAS ADVISORY COUNCIL FOR ENVIRONMENTAL EDUCATION
COMMITTEE MEMBERS FOR ENVIORNMENTAL EDUCATION
GUIDELINES FOR TEACHER EDUCATION

Chairman ..... Dr. Ramona J. Anshutz
Program Specialist
Kansas State Department of Education

Members ..... Dr. Gene Fairchild
Associate Professor of Biology
Pittsburg State University

Dr. Robert James
Professor of Science and Environmental Education
Kansas State University

Dr. J. Robert Berg
Professor and Chairman of Geology and Geography
Wichita State University

Dr. Dennis Pickering
Professor and Chairman of Curriculum and Instruction
Pittsburg State University

SUB-APPENDIX 2.B

GOALS AND OBJECTIVES (Sub-committee report)

The goals and objectives proposed in this paper are prepared for environmental education curricula for kindergarten through adulthood.

The philosophy is that the *product* will provide the rational framework for evaluating the kindergarten through adult environmental programs in Kansas.

The questions the committee have been concerned with are: Is the product workable? What will the impact on the learner be? Do the objectives and goals help the children and youth?

The *product* is a framework with which the user can use as a starting point and enhance their program at their own discretion.

The goals are meant to convey the intent of the program. They are simply a starting point and must be continually reassessed to see if they are consistent with changes in cultural values, societal problems, the needs of the learner, and the nature and structure of science.

The KACEE Advisory Committee elected to:

1. Describe environmental education
2. Develop goals
3. Describe the big areas of environmental education

I. What is Environmental Education?

The term *environmental education* means the educational process dealing with one's relationship with their natural and man-made surroundings.

It is the process of helping learners to perceive and understand environmental principles and problems and enabling them to identify and evaluate the alternative solutions to these problems and assess their benefits and risks.

Environmental education is the process that fosters greater understanding of society's environmental problems and also the processes of environmental problem solving and decision making.

A. Goals

1. To develop an awareness and appreciation of our environment
2. To develop an understanding of one's relationship with their natural and man-made surroundings
3. To be able to identify possible alternative choices and assess their benefits and risks
4. To develop a desire and ability for problem solving and decision making concerning environmental issues

B. Broad Areas of Concern

1. Pollution
2. Resources
3. Population
4. Technology

II. Population Dynamics

A. Ecosystems

1. To classify components (producers, consumers, decomposers)
2. To analyze food chains
3. To analyze energy flow
4. To examine carrying capacity (including human carrying capacity, energy/food production, space/aesthetics)
5. To analyze limiting factors
6. To define and describe bio- geo- chemical cycles

B. Reproduction

1. To explain and apply basic understanding of the reproductive system
2. To define contraceptive technology (includes moral and ethical considerations)
3. To analyze population dynamics (fertility, productivity, disease, immigration, and emigration)

C. Political and economic considerations

1. To analyze and evaluate political and economic consideration at the local level
2. To analyze and evaluate political and economic consideration at the national level (intra and inter)
3. To analyze and evaluate political and economic consideration at the international level (global)

III. Pollution

A. Air Pollution

1. To study the six criteria air pollutants (particulates, sulfur oxides, hydrocarbons, carbon monoxide, oxides of nitrogen, and photo chemical oxidants)
2. To describe short and long term effects of the six criteria air pollution on the ecosystem (human health, vegetation, wildlife, soil and other)
3. To examine the interrealtionships of the various sources and kinds (include meteorology)
4. To suggest and justify alternative ways to reduce pollution

B. Land Pollution

1. To describe short and long term effects on the ecosystem (human health, vegetation, wildlife, soil and other)
2. To examine the interrelationships of the various sources and kinds
3. To suggest and justify alternative ways to reduce pollution

C. Water Pollution

1. To describe short and long term effects on the ecosystems (human health, vegetation, wildlife, soil and other)
2. To examine the interrelationships of the various sources and kinds
3. To suggest and justify alternative ways to reduce pollution

IV. Resource for the Future

A. Classification

1. To classify and evaluate metals, non-metals, mineral fuels, water, and land (agricultural) (See following classification table Sub-Appendix 2.C)

B. Utilization of Resource Classification

1. To analyze utilization of resource with regard to allocation, depletion, substitutes, recycling and conservation

C. Environmental Concerns

1. To examine the environmental concerns of conservation, waste disposal, pollution (land, air, water — knowledge pollution)

D. Integration

V. Environmental Impact of Technology (See Sub-Appendix 2.D)

A. Effects of Technology

1. To become aware of short and long term effects of technology on the ecosystem, such as transportation, packaging, energy, and others

B. Identify alternate solutions

1. To identify alternate solutions to short and long term effects of technology on the environment, such as transportation, packaging, energy, and others

C. Selected alternatives

1. To evaluate and implement selected alternatives to the effects of technology on the environment, such as transportation, packaging, energy, and others

SUB-APPENDIX 2.C

A MINERAL RESOURCES CLASSIFICATION

I. Metals

A. Ferroalloys

Iron	Nickel
Manganese	Cobalt
Tungsten	Molybdenum
Chromium	Titanium
Vanadium	Tantalum

B. Non-ferrous

Copper	Lead
Zinc	Tin
Aluminum	Magnesium
Arsenic	Antimony
Mercury	Beryllium
Uranium	Bismuth
Lithium	Cadmium
Selenium	Zirconium
Platinum	Gold & Silver

II. Mineral Fuels

Coal
Petroleum
Natural gas
Uranium

III. Non-Metals

A. Chemical & Electro-chemical

Sulfur
Fluorspar
Graphite
Salt
Borax
Chromium

B. Fertilizers & Explosives

Potash
Nitrates
Phosphates

C. Abrasives

Industrial diamonds
Corundum

D. Insulators

Mica
Asbestos
Magnesia

E. Refractories

Chromite
Fire clay
Silica

F. Ceramics

Feldspar
Clays

G. Fillers

Diatomite
Barite

H. Building and Structural Materials

I. Precious stones

J. Ground water

SUB-APPENDIX 2-D

EFFECTS OR IMPACTS TO BE CONSIDERED

ENVIRONMENTAL EFFECTS

*Man-made resources
*Natural resources
Pollution aspects

*Air

CO
Sulphur oxides
Hydrocarbons
Particulates
Photochemicals

*Water

Pathogenic agents
Nutrients N and P
Pesticides, herbicides, rodenticides
Organic materials
Solids, dissolved and suspended

Land

Soils

Animal and plant

Birds
Mammals
Amphibians
Fish, sport, and commercial
Shellfish
Insects
Microfauna
Trees, shrubs, and plants
Microflora

Ecosystems

Habitats
Food chains
Productivity
Diversity
Stability

* Required by P.L. 91-611.

Physical and Hydrologic aspects

- Erosion
- Erosion and sedimentation effects
- Compaction and subsidence
- Slope stability
- Groundwater regime alteration
- Surface flow effects

SOCIAL EFFECTS

- *Noise
- Population, e.g.
  - Mobility
  - Density
  - Displacement of people
- *Esthetic values
- Housing
- Archeologic remains
- Historical structures
- Transportation
- Education opportunities
- Leisure opportunities (recreation, active & passive)
- Cultural opportunities
- *Community cohesion
- *(Desirable) community growth
- Institutional relationships
- Health

ECONOMIC EFFECTS

- National Economic Development
- Local government finance, e.g.
  - *Tax revenues
  - *Property values
- Land use
- *Public facilities
- *Public services
- Local/regional activity, e.g.
  - *(Desirable) regional growth
  - Relocation
- Real income distribution
- *Employment/labor force
- *Business and industrial activity
- Agricultural activity
  - *Displacement of farms
  - Food supply
- National defense

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* Required by P.L. 91-611.

APPENDIX 3

GUIDELINES AND DIRECTIONS FOR THE IMPLEMENTATION OF ENVIRONMENTAL EDUCATION

1. **Successful implementation will be most closely associated with the development of a cadre of committed persons who can lead others to commitment. The identifications of these leaders is a preeminent task.**

   Direction #1. A cadre of committed leaders should be identified and trained which would represent regions, levels, etc. They would train others.

2. **The balance of the resources necessary for a successful implementation exists within persons, institutions, school districts, agencies, and communities in Kansas. The success of this effort will be directly related to the availability and usefulness of these resources.**

   Direction #2. (1) Persons, agencies, and groups responsible for various target populations should receive information about the resources available. (2) When resources are now available they should be specified and sought.

3. The implementation plan must recognize the unique qualities of local implementors.

   Direction #3. The implementation plan should (1) provide a balance between structure and flexibility in order to provide the support and ***breathing room*** needed by individuals and (2) recognize that the quality of commitment made by local implementors is related to the ***ownership*** they are able to take.

4. Implementation should be a stepwise process with those steps developed in some logical order or sequence of growth.

   Direction #4. The steps in this implementation should be:
   (1) awareness
   (2) cognitive growth
   (3) action (sound environmental education problem solving)

5. A one-to-one relationship should be established between each target population and the agency(ies) responsible for their learning about environmental education so that all populations are included.

   Direction #5. Target populations should be identified and assigned.

6. Successful implementation of environmental education should recognize the value of environmental education in:
   a. Providing relevant learning experiences which can contribute to each individual's quality of life.
   b. Providing the broadest possible view of life and its interrelatedness.
   c. Providing unification of learning within school. It grows out of every discipline and ties them together.

7. Any implementation plan should be based on sound knowledge of the current status of environmental education in the state.

   Direction #6. Statewide status assessment should be begun.

APPENDIX 4

ENVIRONMENTAL EDUCATION SEQUENCE EXAMPLE

An example of Environmental Education programs against which to assess resources and needs:

The field of environmental education is unlike any other field of knowledge because as one becomes knowledgeable in the field, one does not experience *knowing more and more about less and less* but rather is compelled to become a generalist. Our environment is an unimaginably complex system of systems; if we are to live well, this is what we must try to understand. The environmental educator searches for the general principles that run through many disciplines. Indeed, environmental education can and should become the cohesive factor of all of the disciplines.

The accomplishing of this type of all encompassing education can take many forms. It can vary from having a specialized staff of environmental educators within an organization, to having designated areas which regular staff may utilize in teaching environmental concepts, to having a regular staff aware and prepared to use their existing curriculum (and/or program) and resources to teach the desired concepts.

Because of this great variance of forms of accomplishing environmental education, this outline shall encompass a description of concepts to be taught rather than specific behavioral objectives. The teaching of these concepts should ultimately fulfill the following universal goals, however.

1. The student, or participant, will:
   a. demonstrate an understanding of and appreciation for the dependence of living things on each other and their physical environment.
   b. demonstrate an understanding of and appreciation for the processes and dynamics of population management.
   c. demonstrate an understanding and appreciation for wise use of natural resources.
   d. demonstrate an understanding of and appreciation for the recycling and reclamation of natural resources.
   e. demonstrate an understanding of and appreciation for a quality environment and will develop a personal value system which will be supportive of programs seeking the improvements of the quality of all life.

The sequence of the following concepts will vary from school system to school system, from agency to agency, from organization to organization, but the overall framework can be similar.

A. Formal Education
   1. K-12
      a. Kindergarten (Observations)
         (1) Non-living components of the environment
         (2) Living components
         (3) Observations, utilizing all senses, of similarities and differences
      b. Level One (Soil and Plants)
         (1) Simple components of soil
         (2) Groups of plants
         (3) Needs of plants
         (4) Reproduction of plants
         (5) Importance of plants
         (6) Adaptations of plants
      c. Level Two (Animals)
         (1) Groups of animals
         (2) Needs of animals

(3) Importance of each animal and endangered species
(4) Animal habitats
(5) Animal adaptations

d. Level Three (Man in Cities)

(1) The city as an ecosystem
(2) The systems within a city
(3) The needs of a city
(4) Changes in cities — past, present, and future
(5) Role of individuals within communities

e. Level Four (Interrelationships)

(1) Interaction between living and non-living environmental components
(2) Interaction between plants and animals
(3) Cycles of nature
(4) Basic terms of ecology

f. Level Five (the Earth)

(1) Formation of fossil fuels
(2) Rock cycle
(3) Minerals
(4) Earth formation and changes
(5) Fossils

g. Level Six

(1) Comparisons of ecosystems
(2) Natural changes — succession
(3) Man-made changes — technology
(4) Population cycles
(5) Energy flow

h. Level Seven (Aquatic Ecosystem)

(1) Ecological review
(2) Methodology of collecting, organizing, and using data

i. Level Eight (Man and Technology)

(1) The social environment
(2) The economic system within an ecological framework
(3) Technological advances within an ecological framework

j. Level Nine (The Earth — non-living)

(1) Review of non-living components
(2) Methodology of collecting, organizing, and using data

k. Level Ten (Forest and/or Grassland Ecosystems)

(1) Ecological review
(2) Methodology of collecting, organizing, and using data

l. Level Eleven (Population and Resources)

(1) Population controls
(2) Land use
(3) Renewable and non-renewable resources
(4) Technological uses of some

m. Level Twelve (Earthmanship)

(1) Economics and environment
(2) Politics and environment
(3) Energy production alternatives
(4) Personal pollution and social environment

2. Preservice and in-service teacher and agency field worker professional training and ongoing in-service training should be required to provide:

   a. Review of ecological principles
   b. Ways to incorporate the process method in environmental teaching
   c. Updating of current environmental data
   d. Awareness of locations for field experiences and methods whereby field trips will be experimental learning rather than look-see
   e. Ways to incorporate environmental studies in all areas of the curriculum and/or program

3. Post High School

   a. Colleges and universities should offer courses in environmental studies
   b. Deans of various schools should be made aware of the universal applications of such courses and they, in turn, should encourage enrollees in their schools to participate in such courses.

B. Non-formal

1. Pre-kindergarten

   a. Nursery schools and day care centers should be encouraged to utilize a process approach to their already existing program of field trips. They should further be made aware of their role in the overall environmental education plan
   b. Through parenting education, families should be encouraged to formulate early attitudes of conservation and awareness

2. Adult

   a. Continuing education programs should include courses and experiences incorporating environmental principles
   b. Recreation programs should include outdoor experiences for adults
   c. Industries should be encouraged to inform adult groups about technology in action and the efforts being made by industry to protect the environment
   d. Adult organizations should be encouraged to utilize environmentally oriented speakers from governmental agencies, schools, colleges, etc., as programs

3. Community

   a. A central facility, such as the public library, should have compiled for public use a list of materials, programs, and facilities available for environmental education
   b. Recreational programs should coordinate some of their existing programs with environmental education efforts
   c. Youth agency leaders should receive training in environmental education so that they may incorporate such training in their programming.
   d. Civic organizations can assist with environmental education efforts by providing funds for site procurement and development, transportation, volunteer service. They can be catalytic in getting such programs started and supportive in keeping them ongoing.
   e. All of these groups should cooperate in keeping a community environmental education movement vital by sharing resources, sites, and personnel.

APPENDIX 5

BYLAWS OF THE KANSAS ADVISORY COUNCIL FOR ENVIRONMENTAL EDUCATION

(as amended November 16, 1977)

We, as concerned citizens of Kansas, recognizing man's dependency on all natural resources and seeking to preserve, improve, or utilize the natural environment of our state for the benefit and enjoyment of all, do hereby agree to encourage citizen awareness and concern for the wise use of all our natural resources and to direct our educational efforts to achieve these goals.

I. Purpose

A. To serve through an Executive Committee as an advisory council to the State Department of Education.

B. To serve as a medium for the interchange of information among member agencies and organizations interested in or working in environmental and resource-use education.

C. To provide a medium through which programs may be cooperatively developed to promote and encourage the teaching of appreciation for the environment and wise use of our natural resources.

II. Objectives

A. To develop among the citizens of Kansas:

1. Knowledge about, understanding of, and appreciation for our total environment.
2. An awareness of our mutual dependency upon natural resources.
3. A positive attitude toward conservation and the proper utilization of our natural resources.
4. A sensitivity toward resource misuse and abuse.
5. A willingness to correct and support the correction by others of undesirable resource use practices.

B. To encourage and assist the development and use of educational processes by:

1. Providing information relative to natural resources in Kansas.
2. Developing an interest in and appreciation for the natural resources of community, state and nation.
3. Developing an understanding of the interdependence of people, animals, minerals, plants, soil, water, and air.
4. Creating an understanding that the continuation of all occupations and industries depend upon the wise use of natural resources.
5. Helping students understand that every citizen has a responsible role in the wise use of resources.
6. Instilling a desire to participate in the solution of environmental problems.
7. Fostering a greater awareness and understanding of the role of local, state, and federal governments in environmental conservation.

III. Membership

The Council shall be composed of state and federal agencies; educational institutions and organizations; professional, civil and social organizations; and any other groups with an interest in supporting environmental education in Kansas. Any number of representatives per membership may attend the council meetings; however, only one designated representative shall have voting power.

Additional member organizations may be added by recommendation of the Executive Committee, subject to approval by the Council at its next regular meeting.

Council Membership may be terminated by:

1. Resignation submitted to the Executive Committee.
2. Action of the Executive Committee in case the member agency, institution, organization, or group is no longer in existence.
3. Recommendation of the membership committee and affirmative vote of two-thirds (2/3) of the Council members present and voting at any regular meeting of the Council.

IV. Officers

The officers of the Council shall consist of a president, vice-president, secretary, and treasurer. All Council officers shall be elected from the membership of the organization for a two-year term at the first regular meeting of the Council during each even numbered year and shall serve until their successors have been elected and assume office. All Council officers except the President may succeed themselves.

The Executive Committee shall be composed of the four elected Council officers, the immediate past president and five members elected at large. The Executive Committee shall in addition to its other responsibilities: 1. represent the Council in all of its relations with the State Department of Education; 2. conduct the business of the Council between sessions; 3. plan and coordinate the activities of the Council; 4. name the membership of such committees as may be established through these bylaws of Council action; 5. prepare an annual report to KACEE; 6. have one representative from the Executive Committee sit on each standing committee; and 7. report the Executive Committee's activities to the Council.

In the event of a vacancy of the elected officers or committee members, the president shall appoint an officer or Executive Committee member to serve until the next regular Council meeting when an individual shall be elected to serve for the remainder of the unexpired term. In the event of the vacancy in the presidency, the vice-president shall succeed the president.

V. Committees and Committee Functions

A. Membership Committee

1. Contact potential members.
2. Compile a list of potential member organizations for each semi-annual meeting and distribute such information to KACEE members.
3. Maintain a membership list that is updated semi-annually to include names, addresses, and organizational responsibilities of each member.
4. Contact members who have not attended recent meetings and encourage their active participation.
5. Review and evaluate reasons for non-participation and make appropriate recommendations to the Council.

B. Finance Committee

1. Determine financial needs of the Council.
2. Prepare an annual budget to be submitted to the Executive Committee.
3. Develop means of securing funds for financing Council activities.

C. Teacher Preparation Committee

1. Make recommendations to the Council as to how KACEE can best assist Kansas teacher training institutions.
2. Coordinate and promote environmental education workshops for Kansas teachers and other interested individuals.

3. Disseminate professional information to teachers throughout the state, such as courses, institutes and workshops that deal with environmental problems and environmental education.

D. Educational Materials and Services Committee

1. Serve as a clearing house for the distribution of information concerning new acquisitions in state environmental education collections.

2. Promote the development of materials, provide information or otherwise assist Kansas educational institutions in improving instruction in environmental education.

E. As the need arises the Council president may establish temporary committees and name their members. All committees shall report their activities to the Council at each regular meeting.

VI. Meetings

The Council shall have two regular meetings during the year at such time and place as may be determined by the Executive Committee. Other meetings of the Council may be called at the request of at least six Council members or by the Executive Committee.

The Executive Committee shall meet at such times and places as may be determined by the president or requested by a majority of the Committee.

VII. Election and Business Procedures

A majority vote of the Council members present at any regular or special meeting of the Council shall be necessary to elect members to the Executive Committee or pass any motion affecting the Council. A quorum shall be those members present at a special or regular meeting provided the entire membership has been given a thirty-day notice of the date and place of the meeting.

VIII. Amendments

The constitution and bylaws of the Council may be amended by a two-thirds (2/3) majority vote of the KACEE members present at any regular or special meeting of the Council provided that all KACEE members are notified of the proposed amendment at least thirty days prior to the meeting.

APPENDIX 6

MEMBERSHIP ROSTER — NOVEMBER, 1978
KANSAS ADVISORY COUNCIL FOR ENVIRONMENTAL EDUCATION

Colleges & Universities

BAKER UNIVERSITY Baldwin City, Kansas 66006	Raymond Cyr Department of Physics
BETHEL COLLEGE North Newton, Kansas 67114	(To be named) Department of Teacher Education
EMPORIA STATE UNIVERSITY Emporia, Kansas 66802	Dr. Thomas A. Eddy Department of Biology
FORT HAYS STATE UNIVERSITY Hays, Kansas 67602	Dr. Gary K. Hulett Division of Biological Sciences
FRIENDS UNIVERSITY 2100 University Wichita, Kansas 67213	Dr. George Potts, Director Environmental Studies Program
KANSAS STATE UNIVERSITY Manhattan, Kansas 66506	Dr. Fred Sobering, Assoc. Director Cooperative Extension Service Umberger Hall
	Dr. L. V. Withee Agricultural Experiment Station Waters Hall
	Dr. Robert James College of Education Holton Hall
	Ann Scott Environmental Education Curriculum Materials Center Farrell Library
McPHERSON COLLEGE McPherson, Kansas 67460	Dr. Gilford J. Ikenberry, Jr. Coordinator for Environmental Science
OTTAWA UNIVERSITY Ottawa, Kansas 66067	Dr. John Ackermann Environmental Studiez Program
PITTSBURG STATE UNIVERSITY Pittsburg, Kansas 66762	Dr. William G. Allen, Coordinator General Studies
UNIVERSITY OF KANSAS Lawrence, Kansas 66045	Dr. Kenneth Armitage Division of Biological Sciences
	Ruth Gennrich, Director of Public Education Museum of Natural History
	Bill LaShier School of Education

WICHITA STATE UNIVERSITY ..... Wichita, Kansas 67208	(To be named) College of Education Dr. J. Robert Berg Geology and Geography Department

Organizations

AMERICAN ASS'N. OF UNIVERSITY WOMEN ..... KANSAS DIVISION 3500 W. 15th Street Topeka, Kansas 66604	Mrs. William Baker
AMERICAN CAMPING ASS'N. ..... MISSION VALLEY SECTION 5600 East Gregory Swope Park Kansas City, Missouri 64132	Patti Kortkamp
AUDUBON SOCIETY ..... 813 Juniper Drive Manhattan, Kansas 66502	Ron Klataske Regional Representative
DILLON OUTDOOR EDUCATION CENTER ..... Hutchinson Recreation Commission 101 South Walnut Hutchinson, Kansas 67501	Jim Smith
KANSAS ACADEMY OF SCIENCE.....	Dwight Spencer Department of Biology Emporia State University Emporia, Kansas 66802
KANSAS ASSOCIATED GARDEN CLUBS ..... 711 Church Street Neodesha, Kansas 66757	Mrs. Howard McKee
KANSAS ASS'N. OF BIOLOGY TEACHERS ..... Shawnee Heights Schools 2821 S.E. Allen Drive Topeka, Kansas 66605	Paul Willis
KANSAS ASS'N. C[illegible]ONSERVATION DISTRICTS	Robert Edwards Board of Directors Olsburg, Kansas 66520 Paul Zerger Education Committee Route #1, Box 32 McPherson, Kansas 67460 Mrs. Helen Eggerman Auxiliary Green, Kansas 67447

KANSAS ASS'N. OF SECONDARY SCHOOL PRINCIPALS Chapman High School Chapman, Kansas 67431	Dale Relihan
KANSAS ASS'N. OF SCHOOL BOARDS 5401 W. 7th Topeka, Kansas 66604	Dr. Marion McGhehey
KANSAS ASS'N. OF TEACHERS OF SCIENCE 1312 South 55th Kansas City, Kansas 66106	Lloyd Fugate
KANSAS BACKPACKERS ASSOCIATION 921 West 28th Terrace Lawrence, Kansas 66044	Ken Highfill
KANSAS COUNCIL FOR GEOGRAPHIC EDUCATION Department of Geology Thompson Hall Kansas State University Manhattan, Kansas 66506	Dr. David E. Kromm
KANSAS ELEMENTARY PRINCIPAL'S ASS'N Wellsville Unified School District #289 Wellsville, Kansas 66092	Jerry L. Peterson
KANSAS FEDERATION OF WOMEN'S CLUBS Bird City Times Bird City, Kansas 67731	Mrs. Evelyn Creach Conservation Chairman
KANSAS 4-H FOUNDATION Umberger Hall Kansas State University Manhattan, Kansas 66506	John Bolan
KANSAS GRASSROOTS ASSOCIATION, INC. Box 186 Manhattan, Kansas 66502	Della Wray Blythe
KANSAS LUNG ASSOCIATION 4300 Drury Lane Topeka, Kansas 66604	Steve Berndsen Program Director
KANSAS NATIONAL EDUCATION ASS'N. 715 West 10th Street Topeka, Kansas 66612	Lee A. Wastell Director of Administrative Services
KANSAS ORNITHOLOGICAL SOCIETY RFD #1 Admire, Kansas 66830	Jean Schulenberg
KANSAS SECTION, AMERICAN SOCIETY OF CIVIL ENGINEERS Box 5166 Topeka, Kansas 66605	William E. Steps

KANSAS SIERRA CLUB 12123 West 69th Street Shawnee, Kansas 66216	Wendell Mohling Education Chairman
KANSAS TRAILS COUNCIL Box 3162 Shawnee Mission, Kansas 66203	Dorothy S. Moore
KANSAS WILDLIFE FEDERATION, INC. Rural Route #1 Wamego, Kansas 66547	Ted Cunningham Executive Director
KAW VALLEY GIRL SCOUT COUNCIL, INC. P. O. Box 4314 7015 S.W. 10th Street Topeka, Kansas 66604	Mrs. Virginia Bridges Executive Director
LEAGUE OF WOMEN VOTERS OF KANSAS	(To be named) Environmental Quality Chairman
MID-AMERICA ASSOCIATION OF CONSERVATION DISTRICTS 1709 North 98th Street Kansas City, Kansas 66111	Leon Lallier
OUTDOOR BIOLOGY INSTRUCTIONAL STRATEGIES Wichita State University College of Education Wichita, Kansas 67208	(To be named) Professor, Instructional Services
SAVE THE TALLGRASS PRAIRIE, INC. P. O. Box 3126 Shawnee, Kansas 66203	Mrs. D. J. Zeisig
SEDGWICK COUNTY ZOO 5555 Zoo Boulevard Wichita, Kansas 67212	Barbara Burgan
SOIL CONSERVATION SOCIETY OF AMERICA Kansas Council of Chapters 1326 Appleton Parsons, Kansas 67357	(To be named)
TALLGRASS PRAIRIE FOUNDATION 5450 Buena Vista Shawnee Mission, Kansas 66205	Kay Wahl

State Agencies

COOPERATIVE EXTENSION SERVICE	See Kansas State University
KANSAS FISH & GAME COMMISSION Route #2, Box 548 Pratt, Kansas 67124	Chris Madson Editor "Kansas Fish and Game"
KANSAS GEOLOGICAL SURVEY University of Kansas Lawrence, Kansas 66044	Rex Buchanan Director, Information & Education

KANSAS STATE PARK & RESOURCES AUTHORITY 5th Floor, 503 Kansas Avenue Topeka, Kansas 66603	Lynn Burris, Jr., Director
KANSAS WATER RESOURCES BOARD 3rd Floor, 503 Kansas Avenue Topeka, Kansas 66603	Larry Sheets W. E. Steps (retired) 3901 California Topeka, Kansas 66609
KANSAS STATE LIBRARY Reference Division 3rd Floor, State Capitol Topeka, Kansas 66612	Ed Swovelan Head of Reference
STATE BIOLOGICAL SURVEY University of Kansas 2045 "A" Avenue, Campus West Lawrence, Kansas 66044	Ronald L. McGregor, Director
STATE CONSERVATION COMMISSION 10th Floor, 535 Kansas Avenue Topeka, Kansas 66603	Charles Gray
STATE BOARD OF AGRICULTURE 4th Floor, 503 Kansas Avenue Topeka, Kansas 66603	W. W. Duitsman Guy Gibson, Chief Engineer Division of Water Resources 1720 South Topeka Topeka, Kansas 66612
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APPENDIX 7

POLICY STATEMENT OF ENVIRONMENTAL EDUCATION, 1971

"The State Board of Education recognizes the need to strengthen instruction in environmental education and adopts the following concept:

> ***Environmental Education is enhanced by an inter-disciplinary process which deals with man's inter-relationship with his natural and man-made surroundings. Environmental education is intended to provide the citizens with the ability to collect and analyze facts and to reach logical conclusions regarding man's relationship with his surroundings and the use and preservation of known natural resources.***

"The State Board of Education encourages the continuation and enhancement of environmental education and hereby declares that it will have high priority in curriculum content and that the development and inter-disciplinary teaching of environmental concepts appropriate to the age of the learner shall be included throughout the educational process as expressed through a state plan."

HOUSE CONCURRENT RESOLUTION NO. 5004 — 1978

A Concurrent Resolution directing the state board of education to encourage, support, and promote environmental education programs in Kansas school districts and directing the state board of regents to emphasize environmental awareness in teacher preparation programs.

WHEREAS, The problems we observe in the environment today have their origins deep in our past and present way of life; while technology has made life easier for us in many ways, it has also vastly altered the environment; not only is our quality of life reduced but life itself is jeopardized; and

WHEREAS, A new lifestyle is called for, based on the requirements of living within our environment and within the constraints of our available resources, this concept is just now beginning to make itself realized to the general public faced with rising costs and shortages of both energy and materials; and

WHEREAS, It is not only our neighbors' attitude and manner of living which needs alteration, it is ours; one way to begin a new way of thinking and living is through environmental education; and

WHEREAS, Environmental education is a lifelong process; it is a way of looking at life, fostering awareness of other life and interrelationships, learning to recognize the effects (both good and bad) man has on his physical and biological surroundings, and the responsibilities he must accept for the mere fact of his presence and his activities in the environment; it should enable him to make sound ecological decisions and foresee their consequences, to make value judgments, and act accordingly, and

WHEREAS, Environmental education encourages development of life values and a style of living which minimizes destruction and maximizes those relationships that enhance life; it is learning how to contribute to the quality of life, and fosters the constructive use, rather than exploitation, of environment; and

WHEREAS, Environmental education will give an ecological perspective for every aspect of learning and living and will provide alternative ways of thinking and ultimately of acting; Now, therefore,

Be it resolved by the House of Representatives of the State of Kansas, the Senate concurring therein: That, in recognition of the urgent need for incorporation into the existing curriculum in the public school system of the concepts of environmental education, the state board of education is hereby directed to provide leadership in the field of environmental education so that state goals and objectives can be implemented in the school districts of Kansas at the earliest practicable time. In recognition of the fact that the state board of education has already shown concern for environmental education and has cooperated in the operation of certain environmental education pilot projects, the state board of education is further directed to officially recognize the Kansas Advisory Council for Environmental Education (KACEE) and to consult with that advisory council and its executive committee, and to prepare, utilizing present personnel, a comprehensive statewide plan for environmental education; encourage postsecondary institutions to incorporate into their

teacher training program effective environmental education preparation opportunities; prepare guidelines to assist school districts in planning and organizing environmental education programs; provide in-service and other programs as may be necessary to reorient teachers serving in the field; prepare, publish, and otherwise disseminate materials for the continuing education of school personnel; evaluate the effectiveness of school district environmental education programs; and provide such further state-level direction and leadership as will bring the full benefits of environmental education to the youth of this state.

Be it further resolved: That the state board of regents is hereby directed to emphasize environmental education in teacher preparation programs in the institutions under their management.

Be it further resolved: That the secretary of state is hereby directed to transmit a copy of this resolution to the chairman of the state board of regents, the chairman of the state board of education, and to the commissioner of education.

I hereby certify that the above CONCURRENT RESOLUTION originated in the House and was adopted by that body.

APPENDIX 8
BIBLIOGRAPHY

ERIC/SMEAC PUBLICATIONS ON ENVIRONMENTAL EDUCATION

012E ED 125 868
Title: *Teaching Activities in Environmental Education, Volume III, 1975*
Authors: John Wheatley and Herbert Coon
Pages: 195
Date: 1975
Price: $4.00
Description: A selection of environmental education activities for elementary and secondary schools. These activities can be used in a variety of school settings to add environmental education to all parts of the school curriculum.

013E ED 119 982
Title: *Current Issues in Environmental Education 1975. Selected Papers from the Fourth Annual Conference of the National Association of Environmental Education*
Author: Robert Marlett
Pages: 129
Date: September 1975
Form: Offset
Price: $3.25
Description: Contains selected papers from the Fourth Annual Conference of the National Association for Environmental Education. These papers are organized into four categories: general environmental concerns, general environmental education, environmental education programs, and environmental education materials. Altogether, the reports provide environmental personnel with current information on the present and proposed future status of environmental education. Topics covered in these papers include descriptions of environmental education programs at all grade levels throughout the country, discussions of instructional materials available to educators, and status reports on the quality of the environment and environmental education. Some of the papers include a list of references, as well as sample materials.

014E ED 121 595
Title: *Environmental Education: Perspectives and Prospectives. Key Findings and Major Recommendations*
Authors: Rudolph J. H. Schafer and John F. Disinger, Editors
Pages: 28
Date: December 1975
Form: Offset, perfect bound
Price: $1.00
Description: Presents the summary and recommendations of a conference held in July, 1975, and sponsored by the Alliance for Environmental Education and the Western Regional Environmental Education Council.

015E ED 121 612
Title: *Environmental Education: Perspectives and Prospectives. Supporting Documentation*
Authors: Rudolph J. H. Schafer and John F. Disinger, Editors
Pages: 87
Date: December 1975

Form: Offset, perfect bound
Price: $2.00
Description: Supplements the previous publication. Contains reports of eight working groups and summaries of the addresses of six members of the keynote panel. Other items are also included.

016E ED 130 833
Title: *Energy Activities for the Classroom*
Authors: Herbert Coon and Michelle Alexander
Pages: 148
Date: 1976
Price: $4.50
Description: This sourcebook, designed for use in grades K-12, contains energy teaching activities related to energy resources, production, distribution, and use. Each activity has been classified by the editors according to the most appropriate grade level, subject matter, and energy concept involved. Subject areas are science, mathematics, social studies, language arts, and fine arts. The references cited in specific activities could be useful to persons interested in obtaining more activities and ideas related to energy. Many of the activities are interdisciplinary in nature and were developed or suggested by public school teachers.

017E ED 134 478
Title: *A National Survey of the Environmental Knowledge and Attitudes of Fifth Year Pupils in England*
Authors: James M. Richmond and Richard F. Morgan
Pages: 182
Date: January 1977
Form: Offset, spiral bound
Price: $6.00
Description: The primary purposes of this study were to establish baseline data relating to the environmental knowledge and beliefs of 5th year secondary pupils in England and to examine relationships that might be of interest to teachers and curriculum developers in environmental education. Instruments were developed and pilot tested to assess environmental knowledge and beliefs. A sample of 500 secondary schools was randomly selected; usable responses were received from 383 schools (76.6%). In general, pupils responded poorly to factual items. Pupils demonstrated a greater understanding of environmental principles and concepts. Response patterns on the belief items indicated pupils had a moderately positive attitude toward the environment. Relationships between environmental knowledge, attitudes, and selected variables are included in the report. Recommendations for curriculum development and research are identified.

018E ED 121 628
Title: *Environmental Education 1975 - A State by State Report*
Authors: John Disinger and Mary Lynne Bowman, Compilers
Pages: 319
Date: December 1975
Form: Offset, spiral bound
Price: $6.50
Description: This compilation deals with current programs in environmental education in all 50 states, the District of Columbia, and the Territory of Guam. Arranged state-by-state, this volume details such information as: state plans for environmental education, environmental education legislation, teacher certification, state coordinators for environmental education, state environmental education publications and sources, exemplary state public school programs in environmental education, college and university activities in environmental education, and activities in environmental education by respective state resources agencies. The state-by-state reports are prefaced by a brief review of the document's preparation and recommendations for its application. A list of documents maintained in the ERIC collection and produced by state agencies appends the document. The manuscript was prepared and

reviewed by members of the State Coordinators for Environmental Education and the various State Departments of Education along with the National Institute of Education.

019E ED 135 647
Title: *Review of Research Related to Environmental Education (1973-76)*
Author: Robert Roth
Pages: 58
Date: 1976
Form: Offset, perfect bound
Price: $1.75
Description: This publication supplements, but does not replace ED 059 915 (003E). Identifies and critically reviews research on environmental education, and identifies areas for future research. Includes selected studies related to evaluation of programs, outcomes, attitudes, and administrative procedures for secondary schools, colleges, and adults.

020E ED 135 665
Title: *Current Issues in Environmental Education — II, Selected Papers from the Fifth Annual Conference of the National Association for Environmental Education*
Author: Robert Marlett, Editor
Pages: 192
Date: September 1976
Form: Offset, perfect bound
Price: $4.25
Description: This is the second (1976) compilation of papers presented at the annual meeting of the National Association for Environmental Education. The 23 selected papers are organized into four categories: Keynote Speeches; Environmental Education; Programs, Methods, and Materials; General Topic; Environmental Education; and Energy Conservation. The reports provide current information on the status of environmental education, suggestions for the future, and suggestions for instructional activities.

021E ED 141 177
Title: *Environmental Education: A Bibliography of Abstracts from Resources in Education (RIE), 1973-1975.*
Compilers: Robert Roth and Others
Pages: Over 500
Date: December 1976
Form: Offset, loose leaf with 3 hole notebook
Price: $15.00
Description: Contains abstracts to nearly all materials related to environmental education included in *Resources in Education* (RIE) 1973-75. Subject and author indexes are provided to facilitate searching. Supplements, but does not replace ED 089 985 (008E)

022E ED 135 669
Title: *A Directory of Projects and Programs in Environmental Education, Fourth Edition*
Compiler: John F. Disinger
Pages: 330
Date: December 1976
Form: Offset, spiral bound
Price: $6.50
Description: This is the fourth edition of the ERIC/SMEAC *Directory of Projects and Programs in Environmental Education.* This edition contains summaries of 207 efforts, 121 of which were not reported in earlier editions. The remaining 86 are more recent reports of environmental education projects and programs previously described in the second and/or third editions. Included are summaries of efforts spanning a broad spectrum: K-12 formal education, post-secondary formal education, governmental agencies, and private organizations. Entries are listed by state. Each entry usually includes information relating to current program efforts, a person to contact regarding the program, materials available, and future plans.

023E ED 137 140
Title: *Environmental Education in the Urban Setting: Rationale and Teaching Activities*
Authors: Herbert L. Coon and Mary Lynne Bowman
Pages: 208
Date: 1976
Form: Offset, perfect bound
Price: $4.00
Description: A selection of activities for elementary and secondary schools, of particular use to urban schools in their local environments. Also includes a paper discussing the need for environmental education in urban settings and appropriate approaches.

024E ED 141 178
Title: *Population Education Activities for the Classroom*
Authors: Judith M. Schultz and Herbert L. Coon
Pages: 196
Date: 1976
Form: Offset, perfect bound
Price: $4.00
Description: A selection of more than 100 population education activities for elementary and secondary schools, keyed to major concepts. Also contains pre and posttests, bibliography, and film list.

025E ED 141 185
Title: *Environmental Education in Action — I: Case Studies of Selected Public School and Public Action Programs*
Compilers: Clay Schoenfeld and John F. Disinger
Pages: 343
Date: January 1977
Form: Offset, perfect bound
Price: $6.00
Description: Presented is a collection of 26 environmental education case studies recognized as being representative of curriculum materials and/or projects. Contained are action programs that can serve as models for the classroom teacher, principal, curriculum consultant, superintendent, state department official, or teacher educators in the planning and development of programs for local situations. The components, antecedents, and distinctions of environmental education are outlined as a frame for the selected case studies.

026E ED 143 505
Title: *The Report of the North American Regional Seminar on Environmental Education. A Confrontation with the Issues: Environmental Education for the Real World*
Authors: James L. Aldrich, Editor and Others
Pages: 106
Date: August 1977
Form: Offset, perfect bound
Price: $2.50
Description: This report is an account of the North American Regional Seminar on Environmental Education that was held in St. Louis, Missouri from October 5-8, 1976. The seminar process dealt with the important issues related to environment and education in Canada and the United States. Papers presented at the meetings are given in the report. Appendices include the text of the Belgrade Charter, pre-conference papers, and a listing of seminar sponsors and exhibitors, alliance affiliated organizations, and seminar registrants.

027E ED 144 825
Title: *Man and Environment Teaching Alternatives*
Authors: Robert H. McCabe, Editor and Others
Pages: 319

Date: June 1977
Form: Offset, perfect bound
Price: $6.00
Description: Over 30 topics are covered in the publication, including value systems, pollution, population dynamics, and economics. Every topic is then subdivided into alternatives. Each alternative is composed of an overview containing background information on the topic, the basic concept to be learned, student learning objectives, and teaching/learning strategies. Contained within this book are a multitude of ideas about how elementary and secondary grade teachers may present the modular topics of Man and Environment in an interdisciplinary framework.

028E E 147 197
Title: *Affective Instruments in Environmental Education*
Author: John H. Wheatley
Pages: 16
Date: 1975
Form: Offset, with cover
Price: $1.00
Description: This document reviews 14 instruments for measuring attitudes and values in environmental education. Comments are made on the strengths and weaknesses of the instruments and the restricted nature of their content. Lists of additional sources and references cited are also included.

029E E 150 018
Title: *Current Issues in Environmental Education — III: Selected Papers from the Sixth Annual Conference of the National Association for Environmental Education*
Author: Robert H. McCabe, Editor
Pages: 272
Date: November 1977
Form: Offset, perfect bound
Price: $5.00
Description: This is the third in a series of publications utilizing papers presented at the annual conference of the National Association for Environmental Education. The 29 selected papers are divided into the following categories: Energy, International Environment, Population/Population Education, Natural Environment, Values, Learning, and Curriculum and Program.

030E ED 150 026
Title: *Water-Related Teaching Activities*
Authors: Herbert L. Coon and Charles L. Price
Pages: 149
Date: June 1977
Form: Offset, perfect bound
Price: $4.00
Description: Provided are activities for all grade levels and subject areas that can be used to help students learn about water resources. For each activity, the purpose, level, subject, and concept are given. Activities are organized by grade level. Most of these water-related learning activities are science (77) or social studies (46) activities with several mathematics, art, language arts, and music activities included. A section is also included that contains lists of films, filmstrips, addresses of film distributors, and water testing equipment and manufacturer's addresses.

031E ED 152 541
Title: *Land Use Management Activities for the Classroom*
Authors: Mary Lynne Bowman and John F. Disinger
Pages: 260

Date: June 1977
Form: Offset, perfect bound
Price: $5.00
Description: Activities included in this publication were selected and developed to give teachers ideas and examples of ways to implement land use management instruction in the classroom. Each activity has been classified by the authors according to the most appropriate grade level, subject matter, and land use concept involved. In addition to being classified in these categories, each activity contains: (1) a statement of purpose on how the activity may be used; and (2) a reference to a source where the activity may be found in more detail or with variations. The subject areas encompassed by these activities include science, mathematics, social studies, language arts, and fine arts.

032E ED 152 557
Title: *Environmental Education in Action — II: Case Studies of Environmental Studies Programs in Colleges and Universities Today*
Compilers: Clay Schoenfeld and John F. Disinger
Pages: 499
Date: February 1978
Form: Offset, perfect bound
Price: $8.00
Description: This book is an attempt to document the impact of environmental concerns on higher education in recent years as expressed in university courses, curricula, programs, and centers that have modified conventional disciplines or led to new multidisciplinary arrangements, schools, and colleges. The forty-five case studies presented describe environmental studies programs of both large and small colleges and universities, and encompass undergraduate general studies, varied graduate and professional programs, basic and applied research, and extension and continuing education.

033E ED 152 481
Title: *Environmental Education Activities of Federal Agencies*
Author: John F. Disinger
Pages: 167
Date: February 1978
Form: Offset, perfect bound
Price: $3.75
Description: This report presents information on the environmental education objectives, activities, accomplishments, and plans for forty-four agencies of the Federal Government. The agency reports contain an overview of the general mission of the agency, an indication of the levels of involvement in environmental education, history of involvement, target audience, methods used, citations of enabling legislation, funding, grants available, products and publications, measures of success, and future plans.

034E
Title: *Recycling: Activities for the Classroom*
Authors: Mary Lynne Bowman and Herbert L. Coon
Pages: 154
Date: 1978
Form: Offset, perfect bound
Price: $4.50
Description: This publication contains activities designed to help teachers involve students in examining the nature and importance of recycling. For each activity a purpose, grade level, subject matter area, and recycling concept is given. Social studies (52) and science activities (45) predominate, but other teaching areas are also represented; many activities are multidisciplinary. A section listing readings, films, and organizations to contact for recycling information is included.

PUBLICATIONS ON THE NATURE AND PHILOSOPHY OF ENVIRONMENTAL EDUCATION: GOALS AND OBJECTIVES

Adewole, C.A. *Introducing Programmes Into a New Culture.* Nairobi, African Social Studies Programme, 1975.

Aldrich, J.L., *et al.* "A Reading List on Man and His Environments." *The Journal of Environmental Education,* Vol. 4, No. I, Fall 1972.

Aldrich, J.L., Blackburn, A.M. "Should We Believe That Our Planet Is in Peril?" *Controversial Issues in the Social Studies: A Contemporary Perspective.* Washington, D.C., National Council for the Social Studies, 1975.

"What Makes Environmental Education International." *What Makes Education Environmental?* Louisville, Ky., Environmental Educators, Inc. and Data Courier Inc., 1975.

Aldrich, J.L., Kormondy, E.J. *Environmental Education: Academias Response.* Washington, D.C., American Institute of the Biological Sciences, 1972.

BEE (*Bulletin of Environmental Education*), London, selected issues. (Monthly Bulletin of Town and Country Planning Association.)

Bennis, W.G., Slater, P. *The Temporary Society.* New York, N.Y., Harper & Row, 1968.

Burdin, J.L., Sutman, F.X. *In Denfense of Man: Educators and Environmental Action.* Washington, D.C., ERIC Clearing-house on Teacher Education and American Association of Colleges for Teacher Education, 1972.

CEPAL: Commision Economica Para America Latina. Santiago, 1975.

Cerovsky, J. "Environmental Education: Yes — But How?" *Your Environment,* Vol. II, No. I, Spring 1971.

Cole, N.H. Ayodele. *Problems of Pollution in Africa — the Need for Environmental Education.* Sierra Leone, SEPA, Fourah Bay College, University of Sierra Leone, 1974.

Conservation Education at the University Level. Morges, International Union for Conservation of Nature and Natural Resources, Commission of Education, 1967. (IUCN Publications Series, Supplementary Paper No. 9.)

Conservation Education. (Papers presented at the Latin American Conference on the Conservation of Renewable Natural Resources.) Morges, International Union for Conservation of Nature and Natural Resources, 1968. (IUCN Publications New Series, Supplementary Paper No. 12.)

Conservation Education and Training. (Papers presented at the Conference on Conservation of Nature and Natural Resources in Tropical South-East Asia.) Morges, International Union for Conservation of Nature and Natural Resources, 1968. (IUCN Publications New Series, Supplementary Paper No. 11.)

Cook, R.S.; O'Hearn, G.T. (eds.). *Processes for a Quality Environment. Report on Conference on Environmental Education.* Green Bay, Wis., University of Wisconsin, 1970.

Dalen, G.M.; Tipton, C.R., Jr. *Environmental Accomplishments to Date: A Reason for Hope. International Symposium II.* Columbus, Ohio, Battelle Memorial Institute, July 1974.

Deer, C. Case Study of the Postgraduate Diploma in Environmental Studies at Macquarie University. *The Australian Science Teachers Journal,* Vol. 20, No. 2, 1974, p. 31-6.

Dubos, R. *A Theology of The Earth.* Washington, D.C., Smithsonian Institute, Office of Public Affairs, 1969.

Education in Africa: What Goals Come First? New York, N.Y., Carnegie Corporation of New York, Vol. XXIII, No. 1, 1975.

Educational Reform. Kabul, Ministry of Education, 1975.

Environmental Education. Washington, D.C., American Association for the Advancement of Science, 1974. (Reports of Members of the AAAS Consortium of Regional Environmental Education Councils.)

Environmental Education in the Public Schools — A Pilot Study. Washington, D.C., National Education Association, 1970.

Environmental Education: Report of the Council for Environmental Education. London, The Countryside Inn, 1970.

Environmental Science. Toronto, Ont., Minister of Education, Intermediate and Senior Divisions, 1974.

Final Report: European Working Conference on Environmental Conservation Education. Morges, International Union for Conservation of Nature and Natural Resources, 1972. (Publication New Series, Supplementary Paper No. 34.)

Final Report: Intergovernmental Conference of Experts on the Scientific Basis for the Rational Use and Conservation of the Resources of the Biosphere. Paris, France, 1968.

Final Report: International Course for Teachers Training in Environmental Conservation and Education. Morges, International Union for Conservation of Nature and Natural Resources, 1972.

Final Report: International Working Meeting on Environmental Education in the School Curriculum. Carson City, Nev., Foresta Institute, 1970.

Freeman, P.H. *Development, Environmental Impact and the Third World.* Washington, D.C., Smithsonian Institute, undated.

Fersh, S. (ed.), *Learning About Peoples and Cultures.* Evanston, Ill., McDougal, Little & Company, 1974.

Goals and Aims of Education. Islambad, Ministry of Education, 1973.

Guidelines to Conservation Education Action. Glenview, Ill., Izaak Walton League of America, 1966.

Harper, P. "Environmental Education as our Arena of Creative Conflict." *International Understanding,* p. 5-15. Paris, Unesco, April 1972. (No. 23.)

Hart, J. "Education in Science." *Search,* Vol. 3, No. 10, October 1972, p. 362-6.

Helgeson, S.L.; Blosser, P.E., *et al. Environmental Education Programs and Materials.* Washington, D.C., United States Office of Education, 1970. (Putting Research into Educational Practice Report No. 33.)

Henderson, M.T. *Environmental Education.* Boulder, Colo., Social Science Education Consortium, 1974.

Hughes, R.D., Walter, D. "Education and Training in Ecology." *Vestes — The Australian Universities' Review,* Vol. 8, No. 3, September 1965, p. 173-8.

Jameson, P.L., Friedman, S.H. (eds.). *Energy Flow in Human Communities.* University Park, Pennsylvania State University, 1974.

Kesteven, G.L., Maddever, R.S. "Ecosystem Approach to Science Teaching." *Education News,* Vol. II, No. 1, February 1967, p. 16-18.

Kohn, R.F. (ed.), *Environmental Education, The Last Measure of Man.* Washington, D.C., United States National Commission of Unesco, undated.

Lal, S. "Third World Attitudes." *Atmospheric Environment,* 1974.

Le milieu et nous. Toronto, Ont., Minister of Education, Intermediate and Senior Division, 1975.

Little, M.A., Friedman, Sharon M. (eds.). *Man in the Ecosystem.* University Park, Pa, Pennsylvania State University, 1973.

Makagiansaa. *Environmental Education in Indonesia.* Paris, Unesco, 1975.

Manners, I.R., Mikesell, M.W. (eds.). *Perspective on Environment.* Washington, D.C., Association of American Geographers, 1974.

Man's Survival in a Changing World. No. 2. Washington, D.C., International Biological Program Office, National Academy of Science, undated.

McInnis, N., Albrecht, D. (eds.). *What Makes Education Environmental?* Louisville, Ky, Environmental Educators Inc. and Data Courier Inc., 1975.

Mel, Y.P. *Traditional Asian Values and Asian Environments* Ann Arbor, Mich., University of Michigan, 1971.

Modelo Mundial Latino Americano. Buenos Aires, Foundation Bariloche, 1974.

Nakayama, K. *Environmental Education in Japan.* Tokyo, Proceedings of the International Symposium on Environmental Education, 1974.

National Working Conference on Emerging Issues in Environmental Education. Ann Arbor, Mich., University of Michigan Environmental Education Program and Division of Technology and Environmental Education, United States Office of Education, 1974.

Netherlands State Committee for Environmental Conservation Education. *Some Remarks on an Adequate Environmental Education Policy.* The Hague, Ministry of Cultural Affairs, Recreation and Social Welfare, 1974.

New Trends in Integrated Science. Vol. 2. *Teaching.* Paris, Unesco, 1973.

Our Environment — A Science Handbook for Teacher Training Colleges. Freetown, Science Curriculum Development Centre, Njala University College, University of Sierra Leone, SEPA, 1972-74.

P.I.P. (Pollution Information Project). Quebec, National Research Council, 1973.

Pirsig, R.M. *Zen and the Art of Motorcycle Maintenance.* New York, N.Y., Bantam Books, 1974.

Places for Environmental Education. New York, N.Y. Education Facilities Laboratories, 1971.

Population and the Environment. Paris, Unesco, 1975.

Pritchard, T. *Environmental Education: its social relevance in North-West Europe.* Morges, International Union for the Conservation of Nature and Natural Resources, 1969.

The Role of Geography in Environmental Education. London, The Geographical Association, The Standing Committee for Environmental Education, 1974.

Roth, Charles E. *Environmental Education 1970. (Summary Report on the State of the Art Pre-School College.)* Lincoln, Mass., Massachusetts Audubon Society, undated.

Roth, R.E., *International and National Environment Education. (A Status Report.)* Columbus, Ohio, Ohio State University, 1974.

Roth, R.E., Helgeson, Stanley L. (eds.). *A Review of Research Related to Environmental Education.* Columbus, Ohio, Ohio State University and the Education Resource Information Center of United States Office of Education, 1972.

Saveland, R. *Handbook on Environmental Conservation Education — with Selected International Case Studies.* Athens, Ga, University of Georgia, 1973. (IUCN Project 33-4.)

Schoenfield, C. *Toward A National Strategy for Environmental Education.* Madison, Wis., The University of Wisconsin, 1968.

Schoer, Gray. "The Integration of the Sciences and Implications for Interdisciplinary Studies and Environmental Education." *A Science Bulletin for Teachers in Secondary Schools.* New South Wales, Department of Education, (No. 19, 1974.)

Scott, S., Nelson, J.G. *Outdoor Environmental Education in Canada. (A preliminary study.)* Quebec, National Parks Association of Canada, 1973. (Mimeo.)

Should Ecology Conform to Politics? Morges, International Union for Conservation of Nature and Natural Resources, 1974. (IUCN Publications New Series, Vol. 5, No. 12.)

Some Resources for Introducing Environmental Education Into the Schools. Evanston, Ill., The Center for Curriculum Design, 1970.

Spring, G.J. (ed.). *A Proposal for the Support of Environmental Education in Australia.* Woden (ACT), Australia, Curriculum Development Center, 1975.

Stapp, W.B. *A Brief Overview of Conservation Education in the United States.* Ann Arbor, Mich., Department of Conservation, School of Natural Resource, 1967. (Prepaid for the Conservation Foundation.) (Mimeo.)

Development, Implementation, and Evaluation of Environmental Education Programs (K-12), 1974. (Unpublished paper. However, the essence of this article is in: *What Makes Education Environmental?,* p. 93-108. Washington, D.C., Data Courses and Environmental Educators, 1975.)

Stapp, W.B. *et al.* "The Concept of Environmental Education." *Journal of Environmental Education, I.* Madison, Wis., Dembar Education Research Service, 1969.

Stapp, W.B., Cox, Dorothy A. *Five Major Concepts and Supportive Understandings Basic to the Development of an Environmentally Literate Citizenry.* Farmington Hills, Mich., Environmental Education Activities Manual, undated.

Staudinger, M. *In Partnership With Nature.* Breisqua: Deutsche Unesco Kommission, 1973. (D78 Freiburg I.)

Stevens, R.A. *Out-of-School Science Activities for Young People.* Paris, Unesco, 1969.

The Study of Environment in Schools (XXXIst session of the International Conference on Public Education, Geneva.) Paris, Unesco, International Bureau of Education, 1968.

Sutman, F.X. (ed.). *What Kind of Environment Will Our Children Have? (Proceedings of the AACTE/OAS Conference on Education and the Environment in the Americas.)* Washington, D.C., American Association of Colleges for Teacher Education, 1970.

Swann, J. *Environmental Attitudes and Values and Environmental Education (A Paper presented before the First National Conference on Environmental Education at the University of Wisconsin-Green Bay.)* Ann Arbor, Mich., University of Michigan, 1970.

Tanner, T.R. "Conceptual and Instructional Issues in Environmental Education Today." *The Journal of Environmental Education.* Madison, Wis., Dembar Education Research Service, 1974.

Taraxacum, *Bulletin of International Youth Federation for Environmental Studies and Conservation.* Vanersborg, Sweden. (Selected issues.)

Toward A National Strategy for Environmental Education. Madison, Wis., The University of Wisconsin, March, 1968. (Conservation Education Programs.)

PUBLICATIONS ON LEARNING ENVIRONMENTS FOR ENVIRONMENTAL EDUCATION

Blumenfeld, H. "The Modern Metropolis." *Cities.* Alfred A. Knopf Inc., 1966.

Broad, S.T. *Conservation and Fieldwork in Hertfordshire.* Hertford, County Council, 1968.

Caldwell, L.K. "An Ecological Approach to International Development: Problems of Policy and Administration." *The Careless Technology.* Washington University, The Conservation Foundation and the Center for the Biology of Natural Systems, 1972.

Central Electric Generating Board, South Eastern Region. *Pelham Nature Trail.* London, 1971.

Cerovsky, J. *Chranime Pridoru Nasi Vlasti.* Prague, 1960.

Chesler, M., Bryant, B., Crowfoot, J.; Wittes, S. *Resources for School Change — A Manual on Issues and Programmes in Training Educational Change.* Educational Change Team, School of Education, University of Michigan and United States Department of Health, Education and Welfare, 1972.

Chichester, C.W. *The Craftsman in Guyanese Society.* Georgetown (Guyana), 1974.

Cleaning our Environment: The Chemical Basis for Action. A Report by the Subcommittee for the Environmental Improvement, Committee on Chemistry and Public Affiars, American Chemical Society. (Washington, D.C., 1969.)

Conservation of natural areas and of the genetic material they contain. Paris, Unesco, 1973. (Programme on Man and Biosphere (MAB).

Council For Environmental Education. *The Wall, a Starting Point for Environmental Studies.* University of Reading, 1975.

Council of Europe. *A Handbook for Local Authorities.* Strasbourg, 1971.

Davis, K. "The Urbanization of the Human Population." *Cities.* New York, Alfred A. Knopf Inc., 1966.

Documento Basico para Elaboracao do Curriculo Pleno das Unidades Escolares do Ensino de ler Grau. Brazil, Secretaria de Educacao do Distrito Federal, 1974.

Documento de la Primera Reunion Nacional de Ambiente Humano. Buenos Aires, October 1974.

Drakelow Field Study Centre. *Nature Trail.* Burton-on-Trent, 1967.

Dyckman, J.W. "Transportation in Cities." *Cities.* New York, N.Y. Alfred A. Knopf Inc., 1966.

Educational Facilities Laboratories. *Environmental Education/Facility Resources,* New York, N.Y., 1972.

Edzes, H. *More and More Citizens want Wild Flowers.* No. 1 Rotterdam, Press and Information Services, City Hall, 1972.

Eichler, A. *La Ensenanza de la Conservacion en Venezuela.* Merida, Universidad de los Andes, 1968.

Environmental Education Report. Washington, D.C., 1621 Connecticut Avenue.

Evans, D.R., Hoxeng, J. *El Proyecto de Educacion No-Formal del Ecuador.* Quito, Ministerio de Educacion del Ecuador y Centro de Educacion Internacional de la Universidad de Massachusetts.

Fisher, D. *Cuffey Camp Nature Trail.* Hertford, County Council. *Oaklands Farm Trail Summer 1975.* Hertford, County Council.

Forbes, J. *Towards a Co-ordinating Framework for Environmental Education.* Glasgow, University, 1973.

Fyson, A. *First Report 1974 Council for Urban Studies Centres.* London, 1974.

Glasgow Corporation Parks and Botanic Gardens Department. *Leisure in the Parks.* Glasgow, 1973.

Goudswaard, J. *Conservation Education.* Morges, IUCN, 1965. (Papers presented at the Workshop of IUCN, Nairobi.)

Gunter, J. *et al. Notas Tecnicas para el proyecto de educacion extraaescolar del Ministerio de Educacion de Ecuador y Centro de Educacion Internacional de la Universidad de Massachusetts.*

Hawkins, D.E., Vinton, D.A. *The Environmental Classroom.* Englewood Cliffs, N.J., Prentice Hall Inc., 1973.

Herbert, A.T., Oswald P.H., Sinker, C.A. *Centers for Field Studies in England and Wales. The Results of a Questionnaire Survey in 1969.* (Reprinted from *Field Studies,* Vol. 3, No. 4, 1972.)

Hernandez, D.F. *Biology for Philippine High Schools, Laboratory Manual.* Quezon City, University of the Philippines, 1965.

Homme, Societe et Environment. Moscow, Edition du Progres, 1975. (Academie des Sciences de L'URSS, Institut de Geographie.)

Houston, W.R. *Competency Assessment, Research and Evaluation. A Report of a National Conference.* University of Houston, 12-15 March, 1974.

Hubendick, B. *Museums and Environment.* Oxford, ICOM. (The museum in the service of man today and tomorrow.)

IUCN. *Conservation Education and Training in Tropical South-East Asia.* Morges, IUCN, 1968. (Supplementary Paper No. 11.)

La Escuela Normal Rural y sus Relaciones con la Comunidad. Sondeo realizado en tres zonas del Distrito de Cochabamba, Valle Alto, Paracaya, Zona Montanosa de Melga y Tropico. Chapare Bolivia Codex, 1973.

La Escuela Secundaria Basica en el Campo: una innovacion educativa en Cuba. Paris, Oficina. Internacional de Education, Unesco, 1974.

Landwehr, J., Sipkes, C. *Wildeplatentuinen.* Amsterdam, IVN, 1974.

Mac Cown, R.H. *The School Site in Environmental Education.* Yarmouth, Maine, 1972.

McInnis, N. *You are an Environment.* Evanston, Ill., The Center for Curriculum Design, 1972.

Milmine, J.T. *The Community Nature Center's Role in Environmental Education.* Michigan, University, 1971.

Modelo Mundial Latinoamericano. Buenos Aires, Fundacion Bariloche, 1974.

The National Association for Environmental Education. *Environmental Education,* Vol. 2, London, Heinemann, 1973.

National Education Association. *A Guide to Planning and Conducting Environmental Study Area Workshops.* Washington, D.C., 1972.

National Humanistic Education Center, New York, N.Y., Upper Jay, Springfield Road.

Nature Center for Your Community. New York, National Audubon Society, 1963.

Nature Hikes. New Jersey, Western Publishing Company Inc., Education Division, 1974.

Nijkamp, J.A. *Zien en Ontdekken.* Groningen, Noordhoff, 1965.

Notre planete — Approche Ecologique. La Documentation Francaise, Paris, L'Institut de Recherche et de Documentation Pedagogique, December 1973. (No. 6008.)

Offutt, T.W. *Community Problems: An Educational Opportunity?* New York, N.Y., John Wiley & Sons, 1974.

Open Lands Project. *Environmental Education & Your School Site.* Chicago, Ill., 1973.

Palmer, E.L., *Guia para la Conservacion de la Naturaleza.* Morges, IUCN, 1958.

Parks Department Corporation of Glasgow. *The Linn Park Nature Trail Guide Book.* Glasgow, 1970.

Pritchard, T. *Environmental Education — Its Social Relevance in North-West Europe,* Strasbourg, Council of Europe, 1968. (CE/Nat/6867.)

Project Environment. *The School Outdoor. Resource Area.* London, Longmans, 1974.

Project I-C-E, Cooperative Educational Service Agency No. 9. Green Bay, Wisconsin, 1974.

Proyecto Marandu Asuncion. Universidad Catolica 'Nuestra Senora de la Asuncion', 1975.

Redmond, C.R. *Environmental Education at Resident and Day-Use Camps. Guideline Supplement,* July 1972.

Saneamiento Ambiental. Manual para maestros. Asuncion, Division de Saneamiento Ambiental, Ministeria de Salud Publica y Bienestar Social de Paraguay, 1961.

Saveland, R.N. *Handbook on Environmental Conservation Education.* Morges, IUCN. (Project 33-4.)

Speyer, T. "Improvised Play Areas." *Environmental Education.* New York, John Wiley & Sons, 1974.

The Standing Committee for Environmental Education. *The Role of Geography in Environmental Education.* Sheffield, The Geographical Association, 1974.

Stapp, W.B. "An Instructional Program Approach to Environmental Education Based on an Action Model." *Environmental Education.* New York, John Wiley & Sons, 1974.

Environmental Education Program for Toledo Public Schools, 1971. University of Michigan, 1971.

St. Clair, A., Balaban, R.C. *The Mystery Tour: Exploring the Designed Environment with Children.* Washington, D.C., National Endowment for the Arts, 1976.

Stevens, R.A. *Les Activites Scientifiques Estrascolaires pour Jeunes Gens.* Paris, Unesco, 1970.

Stichting Ruimte Voor De Jeugd. *Jeugd en Wonen.* Rotterdam, 1974.

Study Group on Education and Field Biology. *Science out of Doors.* London, Longmans, 1963.

Svenska Natursky Ddsforeninger. *Undervisning i naturvard for grundskolan.* Stockholm 1966.

Swan, J.A. "Some Human Objectives for Environmental Education." *Environmental Education.* New York, John Wiley & Sons, 1974.

Sylva, L.A. "A Tree is a Thing of Beauty." *STEP News International,* Vol. 2, No. 1, (United States National Commission for Unesco, February 1975.)

Teacher's Guide — The Maine Environmental Education Project. Yarmouth, Maine School Department, 1975.

Teachers National Field Task Force. *Inside-Out. Final Report and Recommendations on the Improvement and Reform of American Education.* Washington, D.C., United States Department of Health, Education and Welfare, 1974.

Ten-Minute Field Trips: Using the School Grounds for Environmental Studies. New York, N.Y., Doubleday & Co. Inc., Department of Library Services, 1973.

Terry M. *Teaching for Survival.* New York, N.Y., Ballantine, 1971. (Friends of the Earth.)

Trotman, A. *Environmental Education in Primary Schools.* Hertford, County Council, 1974.

Urban Wild: A Manual for the Development, Implementation and Operation of Nature Centers on School Campuses. Huntington Beach, Calif., Huntington Beach Union High School District, 1902 17th St., 1974.

Vinal, W.G. *Nature Recreation.* New York, N.Y., McGraw-Hill, 1940.

Vladimirov, I. "Operation Formica Saves a Forest." *STEP News International,* Vol. 2, No. 1, February 1975.

Waldo, K. *Der Innsbrucker Hofgarten.* Innsburck, Wagner, 1964.

Wals, H. *Service for School and Children's Gardens.* The Hague, 1971.

Ward C. *Bulletin of Environmental Education, BEE 46, February 1975.* London, Town and Country Planning Association, 1975.

Wert, J.M. *Environmental Education Study Projects for High School Students.* Knoxville, Tennessee Valley Authority, 1974.

Environmental Education Study Projects for College Students. Knoxville, Tennessee Valley Authority, 1974.

Developing Environmental Study Areas. Knoxville, Tennessee Valley Authority, 1974.

Wolman, A. "The Metabolism of Cities." *Cities*. New York, N.Y., Alfred A. Knopf Inc., 1966.

PUBLICATIONS ON INSTRUCTIONAL RESOURCES FOR ENVIRONMENTAL EDUCATION

Baer, H.W.; Gronke, O. *Biologische Arbeitstechniken fur Lehrer und Naturfreunde*. Berlin, Volk und Wissen Verlag, 1964.

Brennan, Matthew J. (ed.). *People and Their Environment. Teachers' Curriculum Guide to Conservation Education*. Chicago, Ill., J.G. Ferguson Publishing Company, 1968-69. 9 Vols.

Cerovsky J., Withrington, D. (eds.). *Final Report, European Working Conference on Environmental Conservation Education, Ruschlikon near Zurich, Switzerland, December 1971*. Morges, IUCN, 1972. (IUCN Publications New Series, Suppl. Paper No. 34.)

Ejchler, Arturo. *La Ensemanza de la Conservacion en Venezuela*. Merida, Instituto de Investigaciones Economicos, Facultad de Economia, Universidad de Los Andes, 1968.

Hundt, R., Kresse, E. *Biologie Arbeitsgemeinschaften, Excursionen*. Berlin, Volk and Wissen Verlag, 1969.

Lambert, J.W. (ed.). *The Teaching of Ecology. A Symposium of the British Ecological Society, Goldsmith's College, University of London, 13-16 April 1966*. Oxford and Edinburgh, Blackwell Scientific Publications, 1967.

Lewis, John L. (ed.). *Teaching School Physics. A Unesco Source Book*. Harmondsworth and Paris, Penguin Books and Unesco, 1972.

Martin, G.C., Turner, E. *Environmental Studies*. London, Blond Educational. 1972.

Martin, C.; Wheeler, Keith (ed.). *Insights into Environmental Education*. Edinburgh, Oliver & Boyd, 1975.

Nicholson, Max. *The Environmental Revolution. A Guide for the New Masters of the World*. London, Hodder & Stoughton, 1970.

Plunin, Nicholas (ed.). *The Environmental Future. Proceedings of the First International Conference on Environmental Future, held in Finland from 27 June to 3 July 1971*. London and Basingstoke, McMillan Press Ltd, 1972.

Pradal, Jean. *The Literature of Science Popularization. A Study of the Present Situation in Member States of the Council for Cultural Cooperation*. Council of Europe.

Schoenfield, Clay (ed.). *Outlines of Environmental Education*. Madison, Wisc., Denbar Educational Research Services Inc., 1971.

Terry, Mark. *Teaching for Survival. A Handbook for Environmental Education*. New York, N.Y., Friends of the Earth and Ballantine Books, 1971.

Tilden, F. *Interpreting Our Heritage*. Chapel Hill, N.C., The University of North Carolina Press, 1957.

Unesco, *Unesco Source Book for Geography Teaching*. Paris and London, Unesco and Longmans, Green & Co., 1965.

New Unesco Source Book for Science Teaching. Paris, Unesco, 1963.

Yogansen, B.G. (ed.). *Srednyaya Shkola i Okhrana Prirody* (Secondary School and Nature Conservation). Tomsk, Tomsk University Press, 1970. (In Russian.)

PUBLICATIONS ON ENVIRONMENTAL EDUCATION BY SCHOOL LEVEL

Abraham, H.J. (ed.). *World Problems in the Classroom. A Teacher's Guide to Some United Nations Tasks*. Paris, Unesco, 1973.

Allport, G.W. "Attitudes." In: C. Murhison (ed.), *A Handbook of Social Psychology*. Worcester, Mass., Clark University Press, 1955.

American Association for the Advancement of Sciences. *Science for Society — A Bibliography*. 2nd ed. Washington, D.C., American Association for the Advancement of Science, Education Department, 1515 Massachusetts Avenue 20005, 1971.

The American Biological Teacher Interdisciplinary Environmental Education. *The American Biological Teacher* (Special Issue), February 1975.

Aries, P. *Centuries of Childhood*. London, Cape, 1962.

Baez, A.V., Alles, J. *Integrated Science Teaching as a Part of General Education, Looking Ahead*, Chapter 9. Paris, Unesco, 1973. (Trends in Integrated Science Teaching.)

Bauer, N.W. "Can You Teach Values?" *Instructor*, August-September, 1970, p. 37-8.

Beauchamp, G.A. *Curriculum theory*. Wilmette, Ill., Kegg Press, 1961.

Bem, D.J. *Beliefs, Attitudes and Human Affairs*. Belmont, Calif., Brooks/Cole Publishing Co., 1970.

Biemiller, A.J. (ed.). *Problems in the Teaching of Young Children*. Toronto, Ontario Institute for Studies in Education, 1970. (Report of Conference in Toronto, March 1968. Deals with children aged 2 to 5.)

Bloom, B.S. *Stability and Change in Human Characteristics*. New York, N.Y., John Wiley & Sons Inc., 1964.

Boulding, K., Clark, H. *The Human Values on Spaceship Earth*. New York, Council Press, 1966.

Brown, A.E., Martin, G.C. (eds.). *Environmental Education: The Present and Future Trends*. Leicester, Society for Environmental Education, 1972. (Occasional Paper No. 7.)

Bruner, J.S. *The Process of Education*. New York, N.Y., Random House, 1960.

"The Act of Discovery." In: Richard Anderson and Davis Ausubel (eds.), *Readings in the Psychology of Cognition*. New York, N.Y., Holt, Rinehart & Winston Inc., 1965.

"Learning and Thinking." In: Richard Anderson and Davis Ausubel (eds.), *Readings in the Psychology of Cognition*, New York, N.Y., Holt, Rinehart & Winston Inc., 1965.

Bruner, J.S. (ed.). *Learning about Learning: A Conference Report*. Washington, D.C., GPO, 1966.

Bruner, J.S., Cole, M. *Preliminaries to a Theory of Cultural Difference*. (Pre-publication draft, 11 February 1971.) (To appear in *Yearbook of the National Society for the Study of Education*. Chicago, University of Chicago Press.)

Bruner, J.S., Goodman, C.C. "Value and Need as Organizing Factors in Perception." *Journal of Abnormal and Social Psychology*, p. 33-42. ILII, 1947.

Carson, R. *Silent Spring*. Houghton-Mifflin, 1972.

Chippindale, F. "The Street and Its Surroundings." *The Society for Environmental Education*. Vol. V, No. 2, Summer 1973, p. 5-9.

Cole, H.; Cole D.; Freemand, C.; Jahoda, M.; Pavett, K.C.R. (eds.). *Thinking About the Future — A Critique of Limits to Growth*. London, Chatta & Windus Ltd., 1973.

Coombs, P.H. *et al. New Paths to Learning*, New York, Unicef-ICED, 1973.

Davis, J.C. *The Politics of Pollution*. New York, N.Y. Pegasus Books, 1970.

DeCecco, J.P. *Human Learning in the School*. New York, N.Y., Holt, Rinehart & Winston, 1963.

Dewey, J. *The Child and the Curriculum*. Chicago, Ill., University of Chicago Press, 1902.

Experience and Education. New York, N.Y., Collier Books, 1938.

Durrenberger, R.W. *Environment and Man. A Bibliography*. Palo Alto, Calif., National Press Books, 1970.

Eisenberg, L., "On Humanizing Human Nature." *Impact of Science on Society*, Vol. 23, No. 3, July-September 1973.

Eisner, E.W. (ed.). *Confronting Curriculum Reform*. Boston, Mass., Little, Brown & Co., 1971.

Elkind, D., Flavell, H.H. (eds.). *Studies in Cognitive Development*. New York, N.Y., OUP, 1969.

Environmental Pollution Panel. *Restoring the Quality of Our Environment*. The White House, President's Science Advisory Committee, 1965.

Fabun, D. *Communications: The Transfer of Meaning*. Beverly Hills, Calif., Glencoe Press, 1968

Dimensions of Change, Beverly Hills, Calif., Glencoe Press, 1971.

Flavell, J.H. *The Development Psychology of Jean Piaget*. London, Van Nostrand, 1963.

Galbraith, J.K. *The Affluent Society*, Houghton-Mifflin, 1958.

Girl Scouts of Metropolitan Detroit. In: M. Brazell and E. Gaut (eds.), *Spaceship Earth 1-4 and Leader Guides*. Detroit, 1972.

Hertfordshire County Council Education Department. *Environmental Education in Primary Schools.* Hertfordshire County Council, October 1974. (With the co-operation of Hertfordshire Environmental Study Association.)

Environmental Study in Primary Schools. Hertfordshire County Council, 1975. (With the co-operation of Hertfordshire Environmental Study Association.)

Hirst, P.H., Peters, R.S. *The Logic of Education.* London, Routledge & Kegan Paul, 1970.

Holt, J. *How Children Learn.* New York, N.Y., Pitman Publishing, 1967

The Hunger Gap. *The Unesco Courier,* May 1975.

Inhelder, B., Piaget, J. *The Growth of Logical Thinking.* London, Routledge & Kegan Paul, 1958.

Institute for Environmental Education. *A Curriculum Activities Guide to Water Pollution and Environmental Studies,* Vols. I and II. Cleveland Heights, Ohio, Institute for Environmental Education, 1971.

International Union for Conservation of Nature and Natural Resources (IUCN). *Conservation Education.* Bariloche, 1968; Morges, IUCN, 1968. (Papers presented at the Latin American Conference on the Conservation of Renewable Natural Resources.)

Environmental Education in an Urban Society. IUCN, Rotterdam., 1971; Morges, IUCN, 1972. (Document of the Ninth Regional Conference of the North Western European Committees Commission on Education.)

Jersild, A.T. *The Psychology of Adolescence.* New York, N.Y., MacMillan, 1957.

Kagan, J. "A Developmental Approach to Concept Growth." In Herbert Klausmeier and Chester Harris (eds.), *Analysis of Concept Learning.* New York and London, Academic Press, 1966.

Kerr, J.F. (ed.). *Changing the Curriculum.* London, University of London Press, 1968.

Klausmeier, H.J. *et al. Concept Learning: A Bibliography, 1950-1967.* Madison, Wisc., University of Wisconsin, Wisconsin Research and Development Center for Cognitive Learning, 1969.

Lovell, K. The Growth of Logical Thinking. *Brit. F. Psychol.,* 1961, p. 143-53. (A follow-up of Inhelder and Piaget.)

Mager, R.F. *Preparing Instructional Objectives.* Pala Alto, Calif., Fearon Publishers, 1962.

Massachusetts Institute of Technology. *Man's Impact on the Global Environment Assessment and Recommendations for Action.* Cambridge, Mass. The MIT Press, 1970.

Meadows, D.H. *et al. The Limits to Growth.* London, Pan Books, Ltd., 1972.

Michael, D. *The Unprepared Society.* Vintage, 1969.

Modgil, S. *Piagetian Research, A Handbook of Recent Studies.* Slough, NFER, 1974.

Mumford, L. *The Urban Prospect.* Harcourt, Brace, 1956

National Association for Environmental Education. *Environmental Education,* Vol. 2, Summer 1973. Heinemann Educational Books, London, 1973.

National Society for Study of Education. *Early Childhood Education, The Seventy-First Yearbook of the NSSE,* Part II. Chicago, University of Chicago Press, 1972.

Roth, R.E. *et al. Environmental Education. Abstracts and Index from Research in Education, 1966-1972.* Washington, Education Association, Inc., 1973.

Values and Teaching, Working with Values in the Classroom. Columbus, C.E. Merrill Publications, 1966.

Sabel — Land of No Return. *The Unesco Courier,* April, 1975.

Science Education Program for Africa (SEPA). *Learning of Science and Mathematics. Concepts by Children in Africa.* Accra, SEPA, 1975. (Report of SEPA to Unesco, 1975.)

Shapiro, B.J., O'Brien, T.C. "Logical Thinking in Children Ages Six through Thirteen." *Child Development,* Vol. 41, 1970, p. 823-9.

Sheaffer, S.J. *A Bibliography of Classic and Current Materials in Ecology and Environment.* Madison, Wisc., Center for Environmental Communications and Education Studies, The University of Wisconsin-Madison, 1970 (Mimeo.)

Singer, H. *Children in the Strategy of Development.* New York, N.Y., United Nations, 1972.

Skinner, B.F. *Science and Human Behaviour*, New York, N.Y., The Free Press, 1953.

Stapp, W.B. "An Environmental Education Program (K-12): Based on Environmental Encounters." ***Environment and Behaviour***. September 1971.

"An Instructional Program Approach to Environmental Education (K-12)." In: William B. Stapp and James Swan (eds.), ***Environmental Education: Strategies for a More Liveable Environment***, p. 1-320. New York, N.Y., Gale Publishing, 1974.

Stapp, W.B. *et al.* "The Concepts of Environmental Education." ***The Journal of Environmental Education***, Vol. 1, No. 1, Fall 1969.

Stapp, W.B., Swan, J.A. (eds.). *Environmental Education*. New York, N.Y., Wiley & Sons, 1974.

Task Force on Environmental Health and Related Problems. *A Strategy for a Liveable Envrionment*. Department of Health, Education and Welfare, 1967.

Unesco. *Asian Expert Seminar on the Development of Science/Mathematics Concepts in Children, Bangkok, 29 May-10 June 1972*. Convened by Unesco and Unicef in association with CEDO, 1972.

Interactions Between Linguistics and Mathematical Education. Nairobi, 1974. (Report of a Symposium sponsored by Unesco CEDO-ICMI).

Unesco-Unicef. *Seminar on the Development of Science and Mathematics Concepts in Young Children in African Countries, Nairobi, September 17-26, 1974. Final Report*. Nairobi, 1974. (Organized by Unesco and Unicef in association with SEPA.)

Unicef. "The Child and Environment." *Unicef News*, No. 1, 1975.

Vygotsky, L.S. *Thought and Language*. Cambridge, Mass., MIT Press, 1962.

Wert, J.M. (ed.). *Developing Environment Education — Curriculum Material — Man and Environment*, Knoxville, TVA Authority, 1974.

Wilson, T.W., Jr. *Bibliographic Materials on Environmental Affairs*. New York, N.Y., The Anderson Foundation, 1970 (Mimeo.)

PUBLICATIONS ON FORMAL ENVIRONMENTAL EDUCATION

Aldrich, J.L., Blackburn, A.M. "Should We Believe That Our Planet is in Peril?" ***Controversial Issues in the Social Studies: A Contemporary Perspective***. Washington, D.C., National Council for Social Studies, 1975.

ALECSO. *Projects for 1976-1977*. Cairo, Egypt.

ALECSO, UNEP. *Environment in Educational Programmes. Report of the Preparatory Committee, First Session, Cairo, 28 April-2 May 1974*.

Bennett, D. "Inservice Teacher Education." In: Noel McInnis and Don Albrecht (eds.), ***What Makes Education Environmental?***, Louisville, Ky., Data Courier Inc. and Environmental Educators Inc., 1975.

Cerovsky, J. "Environmental Education: Yes — But How?" ***Your Environment***, Vol. II, No. 1, London, Spring 1971.

Dasmann, R.F. *et al. Ecological Principles for Economic Development*. London, John Wiley & Sons, 1973.

Dyrli, O.; Roberts, A. *An Environmental Education Workshop*. Storrs; Conn.

Eden, R.A. *Higher Education Programs in Environmental Education in Great Britain*. London, Ont., The University of Western Ontario, 1972. (For the International Workshop on Environmental Studies and Teacher Training, 1972.)

Emmelin, L. *Environmental Education at University Level*. Strasbourg. Council of Europe, 1975.

Environmental Education Report. International Environmental Education Conference. Washington, D.C., August 1974.

European Working Conference on Environmental Conservation Education. Morges. International Union for Conservation of Nature and Natural Resources, December 1971.

Helgeson, S.L.; Helburn, N. *et al. Environmental Education Programs and Material. Putting Research into Educational Practice*. Washington, D.C., United States Government Printing Office, 1972. (Report No. 33.)

Lockard, D.J. *et al. Working International Bibliography on Trends in Environmental Education — 1975.* College Park, Md., The International Clearinghouse on Science and Mathematics Curricular Developments, 1975. (Prepared for Unesco.)

Lyons, K.P. *A Descriptive Study of Prospective Elementary Teacher's Attitudes Relating to Environmental Problems.* Indiana University, 1971.

Our Environment. Vol. II Sierra Leone, NAJALA University College, The Science Curriculum Development Centre. (Report on Workshop for Science Lecturers of Teacher Training College.)

Passmore, J. *Outdoor Education in Canada 1972.* Toronto, Canadian Education Association.

Roth, C.E. *Environmental Education 1970. A Summary Report on the State of the Art, Pre-School College.* Washington, D.C., The Public Broadcasting Environment Center, 1970.

Roth, R.E.; Helgeson, S.L. *A Review of Research Related to Environmental Education.* Columbus, Ohio, Ohio State University and the Education Resource Information Center of United States Office of Education, 1972.

Stapp, W.B. "Environmental Encounters." *Journal of Environmental Education,* 1970.

Environmental Education Program. Toledo, Ohio, Toledo Public Schools, 1972.

Preservice Teacher Education. In: Noel McInnes & Don Albrecht (eds.), *What Makes Education Environmental?* Louisville, Ky., Data Courier Inc. and Environmental Educators Inc., 1975.

Stapp, W.B. (ed.). *Michigan's Environmental Future, A Master Plan for Environmental Education.* Lansing, Mich., Governors Environmental Education Task Force, 1973, p. 62-5.

Stapp, W.B. *et al.* "The Concept of Environmental Education." *Journal of Environmental Education, 1969.*

Selim, S.M. *Conservation Education in California High Schools.* Stanford, Calif., Stanford University, 1951. (Unpublished Ph.D., Dissertation.)

Sutman, F.X. (ed.). *What Kind of Environment Will Our Children Have? Proceedings of the AACTE/OAS Conference on Education and the Environment in the Americas.* Washington, D.C., American Association of Colleges for Teacher Education, 1970.

Trent, J.H. "Environmental Education: Surveys Indicate Its Current Status." *The Science Teacher,* October 1972, p. 48-9.

Troost, C.J.; Altman, H. "Environmental Education." *A Source Book.* London, John Wiley & Sons, 1972.

Unesco Regional Office for Education in Asia. *Further Education of Teachers in Service in Asia: A Regional Survey.* 1974.

United States Department of Health, Education and Welfare. *Inside-Out -1974. The Final Report and Recommendations of the Teachers.* Washington, D.C., United States Government Printing Office, 1974.

University of Houston. *Competency Assessment Research and Evaluation. A Report of a National Conference.* Houston, Tex. 1974.

Vasu, B.S. *et al. Unesco Experimental Project for the Teaching of Contemporary World Problems' in the Training of Secondary School Teachers. Paris, Unesco, 1973.*

Wolsk, D. An Experience-Centered Curriculum: Exercises in Perception, Communication and Action. Paris, Unesco, 1975. (Education Studies and Documents, 17.)

PUBLICATIONS ON ENVIRONMENTAL STUDIES FOR SPECIALISTS

Aldrich, J.L.; Kormody, E.J. *Environmental Education: Academia's Response.* Washington, D.C., Commission on Undergraduate Education in Biological Sciences, April 1972. (Publication No. 35.)

Archbald, D., Gundlach, P. *Environmental Education: An Integrated Approach,* p. 75-6.

Brennan, M.M. "Environmental Conservation Education in the United States of America." *European Working Conference on Environmental Conservation Education.* Ruschlikon, IUCN, December 1971.

Caldwell, L.K. "The Environmental Studies Program at Indiana University." In: J.L. Aldrich and E.J. Kormondy (eds.), *Environmental Education: Academia's Response.* Washington, D.C., Commission on Undergraduate Education in Biological Sciences, April 1972. (Publication No. 35.)

Cerovsky J. "Achieving Environmental Quality Through Education." In: Nicholas Polunin (ed.), *The Environmental Future*, p. 601-7. New York, N.Y., MacMillan, 1972.

Evstafiev, A. "International Co-operation in the Field of Engineering Education." *Continuing Education for Engineers*, p. 22-7, FEANI-Unesco, 1974.

Fanning, O. *Opportunities in Environmental Careers*, p. 271. New York, N.Y., Universal Publishing & Distributing Corporation, 1971.

Harris, C.A. *Some Comments on the Need for Interdisciplinary Approaches to Environmental Analysis, Planning, Development and Management.* North American Committee on Education, IUCN, March 1968.

Hidemitsu Kawakami. "Options for Engineering Education." *Meeting of Experts on Environmental Aspects of Engineering Education and Training, Final Report*, p. 102-4. Paris, UNEP, 1974.

Holling, C.S. In: J.L. Aldrich and E.J. Kormondy (eds.), *Environmental Education: Academia's Response.* Washington, D.C. Commission on Undergraduate Education in Biological Sciences, April 1972. (Publication No. 35.)

IUCN. *Conclusions of the European Working Conference on Environmental Conservation Education Ruschlikon, Switzerland, 15-18 December 1971.* Special Supplement to *IUCN Bulletin* Vol. 3, No. 2, February 1972.

IUCN. *Final Report. European Working Conference on Environmental Conservation Education. Ruschlikon, Switzerland, 15-18 December 1971.* 1972. (IUCN Publications New Series. Supplementary Paper No. 34.)

IUCN. *Workshop of Conservation Education, Nairobi, Kenya, September 12-13, 1963*, p. 75. Morges, 1965. (IUCN Publication New Series, Supplemental Paper No. 7.)

Jolley, C. Institute for Environmental Quality, University of Michigan. In: J.L. Aldrich and E.J. Kormondy (eds.), *Environmental Education: Academia's Response.* Washington, D.C., Commission on Undergraduate Education in Biological Sciences, April 1972. (Publication No. 35.)

Judicial Bases of the Activities of the F.U.L., Arlon, Belgium. The Conservation Foundation. Memorandum from Barbara Reid and Martha Henderson, *Experiments in Art and Technology.*

Klus, J.P. "The Professional Development Degree in Engineering." *Continuing Education for Engineers*, p. 51-5. FEANI-Unesco, 1974.

Lebeyrie, V. "Objectives, Contents and Organization of the Teaching of Problems of the Environment and the Conservation of Natural Resources," *Teaching of the Environment at the University Level.* Tours, OECD, 5-8 April 1971.

Maldague, M. "The University Role in the Formation of Responsible and Precise Material on the Conservation of the Environment." *International Workshop on Environmental Studies in Higher Education and Teacher Training.* London, Ont., August 1972.

Malu Wa Kalenga. "The Technology of the Environment, the Environment of Technology," *UNEP Report, 1974.* p. 99-101.

Miller, G.W. "Huxley College of Environmental Studies." In: J.L. Aldrich and E.J. Kormondy (eds.), *Environmental Education: Academia's Response.* Washington, D.C., Commission on Undergraduate Education in Biological Sciences, April 1972. (Publication No. 35.)

Mizushina, T. "Continuing Education of Engineers in Japan." *Continuing Education for Engineers*, p. 41-6. FEANI-Unesco, 1974.

Myczkowski, S. "The Postgraduate Study Programme in Conservation at Cracow, Poland." *European Working Conference on Environmental Conservation Education.* Ruschlikon, December, 1971.

Obligation for reform: The final Report and Recommendations of the Higher Education, National Field Task Force on the Improvement and Reform of American Education. Washington, D.C., USOE.

OECD. *The Teaching of the Environment at the University Level, Reflections and Thoughts.* CERI, 1973.

Okun, D.A. *Environmental Concerns and their Implications for Education*, p. 33-54. Paris, UNEP, 1974.

Ramachandrea, A., Bhattacharya, R.N. Environmental Education in India, p. 105-10. *UNEP Report, 1974.*

Ranta, O. *Survey of Continuing Education of Engineers in FEANI Countries. Continuing Education for Engineers, p. 56-70.* FEANI-Unesco, 1974.

Ross, J.E. "Interdisciplinary Studies on Environmental Studies at the University of Wisconsin, Madison." In: J.L. Aldrich and E.J. Kormondy (eds.), *Environmental Education: Academia's Response.* Washington, D.C., Commission on Undergraduate Education in Biological Sciences, April 1972. (Publication No. 35.)

Ryabchikov, A.M. "Conception for Study of Environment Changing by Man and Training Specialists in the Soviet Union." *UNEP Report, 1974,* p. 111-13.

Stapp, W.B. *Environmental Encounters. A Strategy for Curriculum Development and Implementation,* p. 104-10.

Szczesny, T. *Environmental Studies in Higher Education and Teacher Training in Poland.*

Unesco. *Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere.* Paris, September 1968.

Unesco. Group of Experts on the Activities Related to Conservation Education. *Programme on Man and the Biosphere (MAB), Final Report 7.* Paris, December 1972.

Unesco. *Summary of the Faure Report: International Commission on the Development of Education.* Canadian Commission for Unesco, January 1973. (Occasional Paper.)

Wang, J.Y. *A Systems Approach Toward Environmental Education,* p. 58-62.

Work and Problems in Education for a Sound Attitude Towards Environment in the Socialist Federal Republic of Yugoslavia, p. 19-32, Beograd, 1972.

PUBLICATIONS ON ENVIRONMENTAL EDUCATION PROGRAMMES FOR OUT-OF-SCHOOL YOUTH

Gladkov, N.A.; Inozemtsev, A.A.; Ogureyeva, G.N. *Nature Conservation in the U.S.S.R.* Leningrad, University Publishing, House, 1972.

Holliman, J. *Consumers' Guide to the Protection of the Environment.* Rev. ed. London, Pan/Ballantine, 1974.

Lindsten, C. (ed.). *Clean Water, No Litter, Precious Soil, Pure Air, Free Wildlife.* Geneva, World Scout Bureau and World Wildlife Fund, 1973-4.

Lindsten, C., Bijleveld, M. *Conservation Information Centres,* Geneva, World Scout Bureau and World Wildlife Fund, 1973-4.

Stevens, R.A. *Out-of-school Science Activities for Young People.* Paris, Unesco, 1969.

'Taraxacum'—Bulletin of the International Youth Federation for Environmental Studies and Conservation. Morges, IUCN.

Unesco. *In Partnership with Youth.* Paris, Frances, Unesco, 1969.

Withrington, D. (ed.). *Youth and Environment, Proceedings of International Youth Conferences in 1971.* Amsterdam, IYF, 1972.

Youth and Environmental Action. Brussels, World Assemby of Youth, 1972.

Youth Involvement and Community Action. In: Robert Saveland (ed.), *Handbook on Environmental Education.* London, John Wiley & Sons, 1976.

PUBLICATIONS ON POLICIES FOR ENVIRONMENTAL EDUCATION

American Association for Health, Physical Education and Recreation. *Research in Outdoor Education.* Washington, D.C., American Association for Health, Physical Education and Recreation, 1973.

Bennett, D.B. Evaluating Environmental Education Programs, *Environmental Education.* New York, N.Y., Halsted Press, 1974.

Eiss, A.F., Harbeck, M.B. *Behavioral Objectives in the Affective Domain.* Washington, D.C., National Science Teachers Association, 1969.

Foskett, W., Young, J. *Search for Success Toward Policy on Educational Evaluation.* Washington, D.C., National Advisory Council on Education Profession's Development, 1974.

Houston, W.R. (ed.). *Competency Assessment, Research and Evaluation. A Report of a National Conference.* Washington, D.C., Department of Health, Education and Welfare, 1974.

Instructional Objectives Exchange. *Environmental Education Grades 4-9.* Los Angeles, Calif., Instructional Objectives Exchange, 1974.

International Centre for Educational Evaluation. *Information Brochure.* Ibadan, The Ibadan University Press, 1974.

Mager, R.F. *Preparing Instructional Objectives.* Palo Alto, Calif., Fearon Publishers Inc., 1962. Describes how to specify objectives in measurable terms.

Maldague, M. Evaluation. *Handbook on Environmental Conservation Education.* (Preliminary edition produced by the International Union for the Conservation of Nature and Natural Resources under a grant from Unesco. Currently under contract for publication.)

Maryland State Department of Education. *Environmental Education. A Maryland Approach.* Baltimore, Md., Maryland State Department of Education, 1974.

Passineau, J.F. Walking the 'Tightrope' of Environmental Education Evaluation. In: Noel McInnis and Don Albrecht (eds.), *What Makes Education Environmental?* Louisville, Ky., Environmental Educators Inc. and Data Courier Inc., 1975.

Popham, W.J. *Educational Evaluation.* New Jersey, Prentice-Hall Inc., 1975.

Review of Educational Research-Educational Evaluation, Vol. 40, No. 2, April 1970.

Robinson, J.P.; Shaver, P.R. Measures of Social Psychological Attitudes (Appendix B). *Measures of Political Attitudes.* Ann Arbor, Mich., Survey Research Center, Institute of Social Research, The University of Michigan, 1969.

Roth, R.E.; Helgeson, S.L. *A Review of Research Related to Environmental Education.* Columbus, Ohio, ERIC Center for Science, Mathematics, and Environmental Education, The Ohio State University, 1972. (Research Review Series.)

Stufflebeam, D.L.; Foley, W.J.; Gephart, W.J.; Guba, E.G.; Hammond, R.L.; Merriman, H.O.; Provus, M.M. *Educational Evaluation and Decision Making.* Bloomington, Ind., Phi Delta Kappa Inc., 1971.

Tyler, R.W.; Gagne, R.M.; Scriven, M. *Perspectives of Curriculum Evaluation.* Chicago, Ill., Rand McNally, 1967.

Webb, E.J.; Campbell, D.T.; Swartz, R.D., Sechrest, L. *Unobtrusive Measures.* Chicago, Ill., Rand McNally, 1966.

Wheatley, J.H. Affective Instruments in Environmental Education. In: Noel McInnis and Don Albrecht (eds.), *What Makes Education Environmental?,* Louisville, Ky., Environmental Educators Inc. and Data Courier Inc. 1975.

Yoloye, E.A. *Evaluation for Innovation.* Newton, Mass., Education Development Center, African Education Program, 1971.